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WAGE POLICY IN RELATION
TO
INDUSTRIAL FLUCTUATIONS

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INDUSTRIAL
FLUCTUATIONS

BY

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PREFACE

THE economic difficulties of post-war Britain, chief among which has been the failure to reduce the volume of unemployment to a figure anywhere near the pre-war "normal" level, have led many writers to criticise the so-called "rigidities" of our economic system. In particular, the inflexibility of wage rates has been widely held responsible for a large part of our troubles, especially those, prevailing before 1930, which were mainly peculiar to Britain. The greater numerical strength of Trade Unionism, as compared with pre-war years, has certainly stiffened the resistance to wage reductions. The unemployment insurance scheme has released trade unions from the necessity of considering whether their policies are likely to add to the volume of unemployment; it has also protected those wage-earners who have jobs from being undercut by those who have not. Moreover, the extension of authoritarian control over wages, especially through Trade Board legislation, has introduced a further element of inflexibility into our wages system. For these various reasons wage rates have, it is claimed, failed to respond, especially in a downward direction, to fluctuations in the capacity of industry to pay. In consequence the burden of unemployment has been greatly aggravated.

The object of the present study is to examine the effects on employment of the inflexibility of the present wages system, and to consider what wage policies are most likely to minimise the volume of

unemployment. Part I, which is mainly analytical, is concerned with the adjustment of wage rates to industrial fluctuations of two kinds: (i) those affecting individual industries and causing shifts in the demand for labour as between different industries, and (ii) cyclical fluctuations affecting all industries in the same direction, though in varying degrees.

If wage rates are to be adjusted to fluctuations in the prosperity of each industry, some clear-cut and generally acceptable criterion of the wage-capacity of an industry must be available; the difficulties of securing agreement between the two parties on how to measure the wages a trade can "bear" are analysed in the opening chapter. The consequences of current attempts to regulate wage rates according to fluctuations in the wage-capacity of individual industries are examined in the following chapter. The main contention here is that the kind of rigidity of wages which is most damaging to employment arises not from the failure of wages to fall in depressed industries, but from their failure to fall in prosperous industries. Permanent shifts in the demand for labour as between different trades need to be followed by an industrial transference of labour, and this can be rendered impossible, or at least inadequate, if high wages prevent a sufficient expansion of demand in the prosperous industries.

In Chapters III and IV we turn our attention to the wage problems arising from the trade cycle. Does the inflexibility of wage rates in periods of boom and slump accentuate the fluctuations in output and employment that are associated with the trade cycle? What part, if any, might wage policy play in smoothing out the cycle and promoting a perpetual state of

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5. The " additional credit " theory.

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- (2) The marginal efficiency of capital. Greater plasticity of wage rates would not affect the rates of gross profit on new investment but would tend to raise rates of net profit. Each entrepreneur, however, will anticipate lower rates of profit if he has to pay higher wages. A steady fall of wages in the capital producing industries would help to sustain the marginal efficiency of capital, but this is an impracticable policy.
- (3) The rate of interest. If wage rates were to move downwards shortly before the limit of monetary expansion was reached, the sharp rise in interest rates which characterises the crisis might be averted. Various objections to a steadily falling level of money wages.

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- (1) Wage reductions are not calculated to raise the propensity to consume.
- (2) Wage reductions will tend to lower rates of net profit on newly produced assets, though entrepreneurs are likely to hold the opposite view.
- (3) Wage reductions are favourable to recovery in so far as they assist in bringing down the level of interest rates. But in a severe depression it is common knowledge that low interest rates may not greatly stimulate investment. And the lower price level and increased burden of indebtedness caused by wage cuts may involve some disinvestment. There is therefore no clear-cut case for wage reductions. This conclusion is supported by experience in the last depression.

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PART I
ANALYTICAL

CHAPTER I

THE CAPACITY OF AN INDUSTRY TO PAY WAGES

THAT wage rates should be determined partly, if not wholly, by reference to the capacity of each industry to pay, is widely accepted as one of the basic principles of wage regulation by organisations of employers and of employed, as well as by industrial arbitrators and statutory wage-fixing authorities. Both the parties to the wage contract are prepared, in appropriate circumstances, to base their claims to changes in wage rates on this general principle. A decline in the rate of profit which can be earned in a particular trade normally induces the employers in it to press for wage reductions, on the ground that the trade can no longer bear such high wages as hitherto; while a rise in the rate of profit leads to demands for wage increases by organised labour, on the plea that the trade can now afford to pay higher rates.

Neither party, as a rule, advocates the adoption of this principle to the exclusion of all other considerations. If its application in a particular situation would lead to the establishment of wage rates which either party deems "unfair" or undesirable, some other principle of wage regulation is likely to be adduced as a counter-consideration. When, for instance, the maximum wage rates which the employers in a particular trade claim they can bear are abnormally low,

or when drastic wage reductions are threatened, trade unions are likely to take their stand on the principle of the "living wage" and to urge that a wage adequate to meet the requirements of a "decent" standard of living should be a first charge on the proceeds of every industry; and that if a particular trade cannot bear such a wage, it is better that it should go out of existence. Again, both parties subscribe, in different circumstances, to the principle of "fair wages" and are prepared to contend that the rates proposed should not be adopted, because they are unfairly low or unfairly high as compared with the rates earned by workers of similar efficiency in other comparable trades.

Nevertheless, as long as wage rates continue to be regulated by a process of bargaining conducted between the organised parties within each industry, the wage-capacity of the individual industry must necessarily continue to be one of the basic determinants of wage rates. In a planned economic system, with a central authority for controlling wages, rates of pay might conceivably be maintained at a uniform level in all industries, irrespective of the profitability of the individual industry; but in existing economic systems, outside Russia, it is what the individual trade can afford to pay, not the wage-capacity of industry in general, that is primarily considered in determining scales of wages.

An examination of the arguments used in wage negotiations and industrial arbitration proceedings¹

¹ An exceedingly useful collection of arbitration and conciliation cases illustrative of the general principles of wage determination is to be found in H. Feis, *A Collection of Decisions presenting Principles of Wage Settlement*. See also G. Anderson, *The Fixation of Wages in Australia*; E. M. Burns, *Wages and the State*; and G. Soule, *Wage Arbitration—Selected Cases, 1920-24*.

reveals, however, that although there is a broad agreement between the two parties as to the prime importance of the general principle, they frequently argue at cross-purposes through interpreting it in different ways. The main purpose of the present chapter is to analyse the several meanings that can be attached to the phrase "the capacity of an industry to pay wages" and to consider whether the general principle of adjusting wage rates to the capacity of each individual trade provides any clear guidance in the practical problem of wage-fixation.

Any estimate of the maximum wage rates an industry can bear must depend on which particular combination of a series of alternatives is adopted as the criterion of the wage-capacity of an industry. Are wage rates to depend on what a trade can afford to pay in the short period or in the long period? Is an industry's wage-capacity to be assessed by reference to what the most profitable firm can afford to pay, or the least profitable, or some representative firm? Further, are wage rates to be fixed at such a level as will just induce the firms in an industry to continue to produce on their present scale or on some larger or smaller scale? And finally, is a continuance of the existing methods of production and organisation to be assumed, or are wage rates to be based on what an industry *could* afford to pay if all firms adopted the most efficient methods that are known? Unless the parties to wage negotiations give the same answers to all these questions, it can hardly be expected that their estimates of an industry's wage-capacity will coincide. These alternatives, and the likelihood of the several parties reaching agreement on them, will be examined in turn.

(1) *Long-period and short-period capacity to pay wages.*—In the first place, we have to distinguish between the long-period and the short-period wage-capacity of an industry. In the long run, if all the firms in an industry are to remain in business, wage rates must be such as will enable them to secure at least “normal” profits on their capital.¹ In the short period, on the other hand, wage rates may be maintained at a level which, though too high to permit of the earning of normal profits, does enable the firms in the trade to recover at least the prime costs of their current output, so that production is, for the time being, continued. When an industry is depressed, there is naturally a tendency for organised labour to adopt the short-period view of wage-capacity and to expect firms to put up with less than normal profits until either a recovery of demand or a reduction of costs restores a normal level of prosperity; employers, on the other hand, assessing the wages an industry can bear by reference to the need for normal profits, feel justified in pressing for wage reductions as a means of restoring profitability.

There is clearly a good deal of justification for the adoption by wage-earners of the short-period view of wage-capacity, in that one of the functions of the risk-bearer in an individualist system is to absorb the first shocks arising from the onset of depression. But there is obviously a time-limit to both the willingness and

¹ For the purpose of the argument in this chapter, firms are assumed to be organised on a joint-stock basis, so that the term “profit” refers to the returns on capital, including a positive or negative compensation for risk-bearing, but not including any “earnings of management”. By “normal profits” is meant returns on capital which, relatively to the risks run, just suffice to induce a firm to remain indefinitely in business, continuously renewing its capital equipment but neither expanding nor contracting its output.

the capacity of risk-bearers to absorb these shocks, depending mainly on the ease with which capital can be transferred from the depressed trade into more remunerative channels, and on the capacity of the firms concerned to finance continued losses. The longer wage rates are maintained at the maximum level a trade can bear in the short period immediately following a decline in demand, the greater is the volume of unemployment suffered by the wage-earners in that trade bound to become.

(2) *The differing wage-capacities of individual firms.*—Secondly, as costs of production and rates of profit vary from firm to firm in a competitive industry, owing to differences in organising ability, scale of production, access to markets and many other factors, the question arises as to which firm's wage-capacity is to serve as a measure of what the trade as a whole can afford to pay. Are wage rates to be fixed so as to enable the firm with the highest unit costs to continue to make normal profits, or the firm with the lowest unit costs, or some "representative firm" with modal unit costs? The least efficient employers urge, as is only to be expected, that wage rates should be fixed at such a level as will enable them to secure at least a normal profit on their capital,¹ and prophesy the wholesale ruin of the industry if any higher rates than these are fixed. The more efficient and enterprising firms, on the other hand, tend to interpret the capacity of their trade to pay

¹ Cf. Professor Macgregor's evidence before the Cave Committee (*Minutes of Evidence*, Q. 10,864): "In fixing a minimum we do not accede to the request, say, that was put in one case, that we should fix a rate which could be paid by the worst employer in the worst location. That is a request that has been made more than once." The witness later amended the somewhat dubious phrase "worst employer" to "least efficient employer".

wages by reference to what they themselves can afford to pay. They realise that the fixing of wage rates at a level within their own capacity to pay, but above that of the firms with comparatively high costs, will tend to eliminate the latter from the industry and so increase their own opportunities for development. In the industries covered by Trade Boards, for instance, the more progressive employers have welcomed the establishment of legal minimum rates at higher levels than the weaker firms can afford to pay, because it gives them protection against the "unfair" competition of inefficient firms paying lower wages than themselves.¹

It is not an uncommon practice for industrial arbitrators and wage boards to base their decisions on what "reputable firms" or "ordinary efficient employers" can afford to pay,² these being approximately the "representative firms" of economic theory, neither the most nor the least efficient, but typical of the general run of firms in a trade. When legal minimum wage rates are being established for the first time in a "sweated" trade, this practice appears on the whole to be economically sound. It is based on the fairly reasonable assumption that the firms which are less efficient than the average could, by improving their organisation and technique along the lines already proved successful by the majority of firms, increase their wage-capacity to something like the average level. On the other hand, it is not based on the unreasonable assumption that every firm in an industry could raise its efficiency to the level attained by the

¹ Cf. *Report of the Cave Committee* (Cmd. 1645), p. 23. The Royal Commission on the Coal Industry (1925) declared: "The wage rate for the district should be set by the most efficient employers in it, not be depressed by the least efficient" (*Report*, p. 143).

² Cf. Burns, *op. cit.*, pp. 377-9.

most efficient. It is as unrealistic to postulate equality of organising ability in all firms, as to assume that all men are equally intelligent or all plots of land equally fertile and well-situated; an unequal distribution of organising ability must be accepted as one of the basic features of the structure of a competitive industry.

From the point of view of practical wage-fixation, the basing of standard rates on the capacity of the representative firm has the further advantage of generally providing the most acceptable compromise between the conflicting interests of the parties involved. It is doubtless this consideration which mainly accounts for the comparative popularity of the practice amongst wage-fixing authorities.

But as a permanent method of regulating the standard wage rates in a trade it is much more open to criticism. Suppose that in a competitive trade the disparity between the wage-capacities of different firms is due not to inequalities of efficiency arising from avoidable slackness on the part of some firms in bringing their technique and organisation up to date, but to innate inequalities in the organising ability of the heads of the different firms. Under these circumstances, if wage rates are based on what the representative firm can just afford to pay, firms less efficient than the average will ultimately be forced out of business through their failure to secure normal profits.¹ The firms which were formerly representative will now have

¹ Note that this argument assumes that the more efficient organisers are paid salaries exceeding those of the less efficient by an amount less than the difference between their net productivities. If the whole of the additional receipts imputable to superior management were swallowed up in paying higher managerial salaries, it would be a matter of indifference to the shareholders of a joint-stock concern whether they employed a first-rate manager at a high salary or a third-rate at a low one; in either case the net returns on capital would be the same.

become marginal and less efficient than the new representative firms.¹ If wage rates are again based on the wage-capacity of the new representative firms, there will be a further withdrawal from the trade of firms of less than average efficiency. And so the process of eliminating firms will continue until there remains in the trade either a single firm or a group of firms whose wage-capacities are practically equal.

In short, the systematic adoption of the practice of adjusting wage rates to the capacity of the representative firm would lead logically to the progressive elimination from each industry of all firms except the most efficient. This would be an economically sound tendency in an industry in which minimum average costs could be attained only when the most efficient firm had reached a monopolistic position. In any other case, however, it would have the effect of raising marginal cost and therefore of curtailing the output and raising the price of the industry's product.

(3) *Wage-capacity in relation to the scale of production.*—Thirdly, there arises the question: Are wage rates to be fixed so as to enable the firms in a trade to secure normal profits on the capital already invested in the trade or on some larger or smaller amount of capital? The wage rates an industry can "bear" in given circumstances are clearly higher if it is to be allowed to contract than if it is to be induced to expand. Hence the reply to the question just posed depends in practice on whether the party concerned is seeking to establish a case for higher wages or lower or for the maintenance of existing rates. Employers

¹ On the assumption that no new firms enter the industry to take the places of those which have withdrawn through failure to earn normal profits.

negotiating for wage reductions are likely to urge the need for further capital development and for the earning of a rate of profit which will make additional investment in the industry worth while. At the very least, they will seek to establish a wage-level which will permit the earning of normal profits on the existing capital. The British railway companies, for instance, in presenting their case for wage reductions before the National Wages Board in November-December, 1932, contended that in spite of "efficient and economical working and management" the level of railway wages made it impossible to earn sufficient profits to induce investors to put more capital into the industry; the technical efficiency of railway working could be improved in a variety of ways by further capital expenditure, but this additional capital was not likely to be forthcoming until railway credit had been strengthened by the earning of higher profits.¹

Wage-earners, on the other hand, are not likely to accept the contention that wage rates should be maintained at a level which will allow more than normal profits to be earned on the existing capital so as to encourage expansion of the industry; any abnormal profits, in their judgment, set up a strong *prima facie* case for wage increases. And in a trade which has experienced a decline in the demand for its product they will challenge any interpretation of wage-capacity based on the alleged need for normal profits on the whole of the existing capital. Thus the railway trade unions submitted, in reply to the companies' arguments just referred to, that the British railways were

¹ See *The Case of the Four Group Railway Companies for a Reduction in Railway Labour Costs* (published by the Railways Staff Conference, 1933), pp. 11, 34 and 35.

carrying an excessive burden of capital which represented, to a large extent, ancient expenditure that had become unremunerative. They urged, accordingly, that this over-capitalisation should be eliminated by writing down the companies' capital to its Stock Exchange value. The existing level of railway wages would then permit the earning of normal profits on this reduced amount of capital.

Broadly speaking, we can say that employers are likely to assess the wages a flourishing trade can bear by reference to the desirability of further capital expenditure, and to assess the wages a depressed trade can pay by reference to the need for maintaining intact the capital already invested. Wage-earners will contend that a flourishing industry can bear higher wages as long as more than normal profits are being made on existing capital, and will claim that a depressed industry can bear wages which will permit the earning of normal profits only on some smaller amount of capital than has actually been invested.

In a stationary state in which there occurred no savings, no changes in the demand for individual commodities and no technical improvements, it would be sound policy to adjust wages so as just to permit the earning of normal profits on the existing capital equipment of each industry; there would then be no inducement to undertake additional capital expenditure in the system as a whole or to transfer capital from one trade to another. *But in a dynamic society where savings, technical progress and changes in consumers' tastes are continually occurring, such a wage policy would have the most disastrous consequences.*

Firstly, if any real investment (i.e. net addition to a community's real capital) is to be undertaken, it is

clear that wage rates in some, if not in all, parts of the industrial field must be sufficiently low to make the prospective rate of return on the cost of additional capital assets exceed the current rate of interest. That is to say, there must be a prospect of returns on new capital exceeding the "normal". A policy of pushing up wage rates in all industries to such an extent that no abnormal profit could anywhere be anticipated would therefore prevent any new investment from being undertaken and cause the whole system to stagnate.

In the second place, changes in the tastes of consumers involve changes in the relative demands for labour in different trades, the decline in demand in some directions being compensated by an increase in others. If, in the industries with expanding demands, wages are pushed up to such an extent that no abnormal profits emerge, then, in spite of the increasing demand, no extension of the capital equipment of those industries will be worth while, and consequently no vacancies will be created into which workers could move from the industries with declining demands. Thus the successful pursuit of a policy of adjusting wage rates in all trades so as just to permit the securing of normal profits on existing capital, is calculated to obstruct the occupational redistribution of labour required by changes in consumers' demands. In the same way, the industrial transference of labour which should accompany technical progress would be rendered impossible if this wage policy were systematically pursued.¹

(4) *Wage-capacity in relation to the volume of employment.*—Fourthly, it has been suggested that the

¹ The point raised in this paragraph is discussed more fully in Chapter II.

wage rates an industry can bear should be interpreted to mean those rates which employers can afford to pay when they provide employment for all the workers attached to the industry.¹ With this interpretation, the presence of unemployment in an industry would indicate the existence of higher wages than the industry could bear, while unfilled vacancies would indicate too low a wage-level. Such an interpretation is unlikely to commend itself either to workers or employers; it is, moreover, open to the objections discussed in the preceding paragraph.

It is conceivable, for instance, in a trade with a good deal of "technological unemployment", that no wage reductions, however great, would lead to the reabsorption of all the unemployed attached to the trade. Such a condition is likely to be found where the demand for the product is highly inelastic and where the elasticity of substitution of labour is very low. Nobody, obviously, could accept as reasonable the contention that zero wages were more than a trade could bear because they would still leave some unemployment in the trade. Again, if wages were continuously adjusted so as to provide full employment for all the workers already attached to an industry, wages would steadily rise in any industry enjoying an expanding demand for its product, no unfilled vacancies would ever appear, and it would be impossible to absorb any of the workers thrown out of employment, or alternatively receiving lower wages, in industries suffering from declining demands.

(5) *The influence of technique on wage-capacity.*—Fifthly, the maximum wage rates a trade can bear

¹ E.g. M. T. Rankin, *Arbitration Principles and the Industrial Court*, p. 7.

may be estimated on the assumption either that the firms whose wage-capacity is being measured make no changes in their present technique, or that they adopt the most efficient methods that are at present available. We have to distinguish, in other words, between the wages a trade *can* bear at the moment and those it *could* bear if improved methods, already discovered, were introduced. The natural tendency of employers is to treat this distinction as of little significance and to urge that, even if some further technical and organisational improvements were made, the wage-capacity of their trade would be but little affected. By organised labour, on the other hand, the distinction is considered vital. The British miners, for instance, have consistently argued during the difficult post-war years that the coal-mining industry could be made to bear higher wages if improved methods of producing and distributing coal were adopted : wage rates, they have contended, ought not to be attacked until the industry has been reorganised and proved still incapable of bearing the wages demanded by the men.

THE "ECONOMY OF HIGH WAGES"

This brings us to a further complication in the interpreting of the phrase "the capacity of an industry to pay wages". Hitherto we have assumed that an industry's wage-capacity, however interpreted, is determined quite independently of the wage-level prevailing in that industry, and that the only problem is how to adjust rates of pay to that given wage-capacity. We have now to take account of the fact that the capacity to pay wages is influenced to some extent by the existing level of wages. The prevalence of low

wages in a trade may be an important factor keeping its wage-capacity at a low level; the forcing-up of wages may be indirectly responsible for an increase in the wages a trade can bear.

The "economy of high wages" is a concept with which economic writers have long been familiar. But its recent elevation to the status of a "gospel" during the period of post-war prosperity in the United States has led to a revival of interest in its implications and limitations.¹ The case for "high wages", or, more accurately, for a deliberate policy of raising wages in times of prosperity and resisting wage cuts in times of depression, is based on three main arguments:

(1) Higher wages may result in such an improvement in the efficiency of workers that wage costs per unit of output are reduced.

(2) Higher wages may stimulate employers to introduce improved methods of production which have the effect of reducing wage costs sufficiently to compensate for the higher wage rates.

(3) Higher wages, by increasing the purchasing power in the hands of the masses, will extend the markets for mass-produced commodities, thus permitting an increase in the physical output per worker.

The third argument is clearly of a very different kind from the other two. It is concerned, not with the possibility of raising the wage-capacities of *individual* trades by first raising the wages of the workers engaged in them, but with the alleged need for raising the *general* level of wages in order to provide consumers with additional purchasing power. Its considera-

¹ For a comprehensive account of the development and spread of this "gospel" in the United States see W. Jett Lauck, *The New Industrial Revolution and Wages*, especially chapters viii. and ix.

tion, therefore, falls outside the scope of the present chapter, and will be postponed until the adjustment of wage rates to the fluctuations of industry in general is examined.¹

The influence of wages on the efficiency of workers.—The first of these arguments, which has been described by Nicholson as “the most important principle of political economy”,² has long been part of the stock-in-trade of the professional economist. It was concisely stated by Adam Smith as follows: “The liberal reward of labour, as it encourages the propagation, so it increases the industry of the common people. The wages of labour are the encouragement of industry, which, like every other human quality, improves in proportion to the encouragement it receives. A plentiful subsistence increases the bodily strength of the labourer, and the comfortable hope of bettering his condition, and of ending his days perhaps in ease and plenty, animates him to exert that strength to the utmost. Where wages are high, accordingly, we shall always find the workmen more active, diligent, and expeditious, than where they are low.”³

This relationship between wages and efficiency holds good, of course, only within certain limits. Once a man is in receipt of the minimum wage required for maximising his general health and strength, further wage increases cannot be expected to enlarge his *capacity* to work, though they may intensify his *willingness* to work. But it is somewhat dangerous to generalise about the psychological effects of wage increases, so much depending on the circumstances of

¹ See below, p. 73.

² *Principles of Political Economy* (1902), vol. i. p. 81.

³ *Wealth of Nations* (edited by E. Cannan), p. 83.

each individual case ; whether the increased rate is a time rate or a piece rate, whether the increase removes a sense of grievance which has unconsciously deterred a worker from giving of his best or whether it creates a fresh grievance by being smaller than the increment a man thinks he is entitled to, whether the increase is obtained under an automatic incremental scale or whether it is given as a specific recognition of efficient service, are all factors affecting the worker's psychological reaction to a rise in his wages. Again, whether a man's physical ability to work is favourably affected by higher wages and how much, must obviously depend on the use to which he puts his additional earnings ; whether he spends them in a manner which injures his health, or in acquiring a more adequate supply of the necessities for efficiency.

The experience of a few firms which have been conspicuously successful in combining high wage rates with low labour costs cannot legitimately be used to support the argument that all firms could pursue the same policy with equal success. An enterprising firm which recruits its employees in such a way as to " skim the cream " off the labour market can naturally afford to pay them higher rates than are paid by most other firms ; indeed, if it did not pay higher rates it would be " exploiting " its employees (in the technical sense of the term, *i.e.* paying a worker a wage less than the value of his net product¹).

The influence of wages on the efficiency of organisation.—That higher wages may stimulate employers to improve their methods of production, the second of the arguments enumerated above, has not been so widely recognised. By some writers it is regarded as an

¹ Cf. A. C. Pigou, *Economics of Welfare* (1929), p. 558.

essential element in any theory of collective bargaining;¹ and it has certainly had a not inconsiderable influence on the decisions of industrial arbitrators and statutory wage boards.² Other writers, however, are much more sceptical as to the wisdom of forcing employers to change their methods by making labour relatively expensive;³ while some hold that the theory of collective bargaining can be exhaustively expounded without considering at all the possible repercussions of wage variations on the efficiency of entrepreneurs.⁴

The question has recently been brought into greater prominence by Mr. Rowe in his *Wages in Practice and*

¹ E.g. S. and B. Webb, *Industrial Democracy* (1920), pp. 723 et seq.; J. W. F. Rowe, *Wages in Practice and Theory*, Part III.

² E.g. Professor J. H. Richardson in "The Doctrine of High Wages" (*International Labour Review*, December, 1929, p. 808), refers to the decision of an arbitration board in the Lancashire cotton industry, which awarded only half the wage-reductions the employers proved they needed, in order to put some pressure on the industry to improve its organisation and methods. Mr. E. H. C. Wethered, an appointed member of several Trade Boards, wrote as follows in the evidence-in-chief he submitted to the Cave Committee: "The wage-paying capacity of an industry may be very bad because the management and organisation may be poor. In such case the workers can with justice urge that their standard of life ought not to be depressed in order to perpetuate inefficiency on the part of the employers. They may urge that if the employers are compelled to pay reasonable rates of wages, they will bestir themselves and reorganise on more efficient lines, and that this will in the end benefit the industry and the consumer as well as the workers" (*Minutes of Evidence*, p. 812). Professor D. H. Macgregor, in his report as a member of the Agricultural Tribunal of Investigation, declared that "the purpose of a Wages Board is not to fix uneconomic rates, but to ensure that bad farming is not encouraged by rates lower than can economically be paid" (*Final Report of the Agricultural Tribunal of Investigation*, p. 201). The South African Wage Board has evidently been impressed by the same consideration, and points to improvements in industrial organisation as a justification of the wage policy it has pursued (*Report of the South African Wage Board for the Three Years ending February, 1929*).

³ E.g. J. R. Hicks, *The Theory of Wages*, p. 204.

⁴ E.g. W. H. Hutt's *Theory of Collective Bargaining* contains no reference whatever to this consideration.

Theory. He argues that general wage theory should take into account the fact that collective bargaining (in the form of trade union resistance to wage cuts and of pressure for wage increases) affects appreciably the capacity of an industry to pay wages. "Within limits, which are probably in most industries, and at most times, appreciably wide, an increase in wage rates, if it is maintained for a reasonably long period, is more than likely to generate sufficient improvement in the efficiency of production to pay for itself, in the sense that though the first results will be some unemployment, and some reduction of the National Dividend, the ultimate result will be the reabsorption of these unemployed workers, and an increase in the National Dividend."¹ Similarly, a refusal to accept wage reductions when profits are declining obstructs what would otherwise have been the employers' line of least resistance and compels them to look in other directions for ways and means of reducing costs. In short, if trade unions are willing to accept low wage rates, then low wage rates will continue to prevail, because employers will not be under the necessity of hestirring themselves to adopt methods which would enable them to pay higher rates. The pressure of competition alone, he claims, is not enough either to ensure the rapid adoption of the most efficient methods of production already available or to maximise the rate of new invention; it needs reinforcing by a constant pressure to raise wages. His argument thus leads him to the conclusion that "trade unions ought consciously to try and keep wages not in exact adjustment with, but a trifle above, the current marginal productivity equivalent".²

¹ *Op. cit.*, p. 210.

² *Ibid.*, p. 229.

Hence under given conditions of consumers' demand, of knowledge of technique, and so on, there may exist, according to this line of argument, several equilibrium levels of wages in an industry; whether the highest or lowest of these actually prevails depends on the degree of pressure that trade unions are able to bring to bear on employers.¹ Mr. Rowe is careful to point out that there are limits to the possibility of raising wage rates, without causing permanent unemployment, through this policy of stimulating employers. If wage rates are maintained at too high a level, so that employers are either unable or too discouraged to bear the burden, trade-union pressure may fail completely to stimulate their efficiency, and serious unemployment must then arise.²

The limits within which wage pressure may raise wage-capacity.—But it is one thing to state in general terms that resistance to wage reductions and insistence on wage increases tend, within limits, to increase the capacity of industry to pay wages; it is quite another matter to estimate the potential force of this tendency and to calculate precisely what degree of rigidity of wages or of trade union pressure will give the best results ("best", i.e. in the sense of maximising the real national income, after allowing for the loss of production caused by any temporary unemployment due to the higher wages, and the gain to production in the long run through the consequent introduction of improved methods). Yet if trade unions are successfully to pursue the policy advocated by Mr. Rowe, it is of the utmost importance that they should

¹ Cf. the comments of Professor G. W. Daniels in "Recent Criticisms of the Theory of Wages", in *The Manchester School*, vol. i. no. 2, p. 5.

² *Op. cit.*, pp. 213, 229-35.

be able to estimate more or less accurately the "optimum" degree of wage pressure to apply, for any falling short or exceeding of this "optimum" must result in a failure to achieve the maximum possible real income, or even in the production of an absolutely smaller real income than would have been forthcoming if no wage pressure of any kind had been applied.

An examination of the various factors affecting this "optimum" degree of wage pressure in a given industry suggests that, though the limits within which this policy can be successfully pursued cannot be accurately determined, nevertheless, in most cases they are likely to be very narrow.

(1) *Alternative means of escaping from wage pressure.*
—In the first place, employers who fail to secure normal profits owing to inability to cut wages in a depression or compulsion to pay higher rates, may nevertheless take no steps to increase the efficiency of their businesses because they find it easier to follow other avenues of escape from wage pressure. They may concentrate their energies on securing a protective tariff, or, if they already have one, on increasing it; or they may agitate for a subsidy, a compulsory restrictive scheme or other forms of State assistance to help them out of their difficulties. If they live in an age, like the present, when governments have ceased to believe in the virtues of unrestricted competition and the survival of the fittest in industry, and are willing to give a helping hand to any industry of "national" importance that finds itself in difficulties, they may find government assistance a less arduous and therefore more attractive way of escaping from wage pressure than overhauling their technique and organisation. Alternatively, if they feel that very little

is likely to be provided in the way of government assistance, they may resort voluntarily to semi-monopolistic schemes for raising prices by restricting output or allocating markets. None of these methods of escaping from the pressure of high wages is calculated to increase the efficiency of industrial organisation; the reverse is much more likely to be the case, in so far as such methods delay the elimination of inefficient firms.

The most obvious alternative to the introduction of improvements in technique and organisation is to pass the pressure of higher wage costs on to purchasers in the form of higher prices. If the demand for the product of a particular industry is highly inelastic, employers may be able to do this without appreciably reducing either their profits or the volume of employment in that industry. But it must be remembered that, although workers in the industry in question may find themselves better off in wages and but little worse off in employment, the rise in the price of their product must have the effect of creating unemployment or lower real wages in other industries.

(2) *Substitution of labour-saving methods.*—Secondly, if trade-union pressure succeeds in raising the price of labour in an industry, relatively to the prices of the other factors of production, the improvements employers are most likely to make will be of the "labour-saving" kind; i.e. they will now have a greater preference for methods which require the employment of smaller amounts of labour and larger amounts of other resources per unit of output. Such a substitution of other factors for labour, induced by a relative rise in the price of labour, is calculated, in the absence of any counteracting influences, to create not temporary but

permanent unemployment. Admittedly, "labour-saving" improvements are not the only kind available to employers harassed by wage pressure; but they are certainly the kind which will have a very special attraction for them in their search for means of reducing labour costs.

(3) *The transference of output to the more efficient firms.*—Thirdly, it is sometimes argued that a rise in wage rates may increase the wage-capacity of an industry by forcing the least efficient firms out of business, transferring their output to the more efficient, and thus enabling the latter to reduce their average costs of production (on the assumption, of course, that they are producing under conditions of diminishing average costs). Now, if the rise in wages is to create no permanent unemployment in the industry, the output of the efficient surviving firms must expand by at least the amount of the lapsed outputs of the inefficient liquidated firms (assuming, of course, as is reasonable, that this transfer of output causes no increase in the quantity of labour employed per unit of output). If the industry is to produce an undiminished output there must be no rise in the selling price of its product, which means, in turn, that there must be no rise in the marginal costs of the surviving firms when their outputs expand. And if there is to be no rise in their marginal costs, in spite of both higher wages and greater output, their marginal cost curves must still be falling for the range of output in question.

But under perfectly competitive conditions there can be no equilibrium in an industry as long as marginal costs are still declining for any of the competing firms; any firm with falling marginal costs would inevitably, under keenly competitive condi-

tions, continue to cut its prices and expand its output, until either it monopolised the whole industry or its marginal costs ceased to diminish. Hence the continued existence of keen competition in an industry justifies the presumption that none of the firms in it has a falling curve of marginal costs; in which case a rise in wages that has the effect of transferring output from the less to the more efficient firms must nevertheless tend to raise the marginal costs of the latter above the level prevailing when their output was smaller, and wage rates lower, with the result that the total output of the industry will be reduced and permanent unemployment must arise.

The preceding argument, however, cannot be used so confidently when conditions of imperfect competition prevail, for there is no necessary equality between the selling prices and marginal costs of individual firms in these circumstances; hence one cannot assume without further investigation that a rise in wages which transfers demand to the more efficient firms, but at the same time raises their marginal cost curves, will necessarily compel them to raise prices and curtail the total output of the industry. The conditions in which simultaneous increases in the cost curve and the demand curve for the output of an individual firm will nevertheless lead to no rise in price are qualitatively the same as those in which an increase in the demand for the output of a single firm will, in the absence of any change in the marginal cost curve, lead to a decrease in price. These conditions are briefly as follows: ¹

(i) When the marginal cost curve is falling (which

¹ For proofs of these summary statements see J. Robinson, *Economics of Imperfect Competition*, chapter iv.

is compatible with equilibrium when competition is imperfect), an increase in demand will lead to a fall in price, provided that the shift of the demand curve does not reduce the elasticity of demand at the original price sufficiently to offset the falling marginal cost.

(ii) When marginal costs are constant, an increase in demand will lower the price, provided that the shift in the demand curve results in some increase in the elasticity of demand at the original price. The greater the increase in this elasticity the greater will be the reduction in price.

(iii) When the marginal cost curve is rising, an increase in demand may nevertheless lower the price, provided that the shift in the demand curve increases the elasticity at the original price so as more than to offset the increasing marginal cost.

However, since we are concerned here with the case in which one firm enjoys an increased demand through the elimination of some of its competitors, the conditions affecting total demand remaining unchanged, there is no reason for thinking that the new elasticity of demand at the original price for the output of a single firm will have increased. It is much more likely, in fact, to have fallen, owing to the increased imperfection of competition. The second and third of the three possible cases in which the transfer of demand might involve no rise in price or reduction of output are, therefore, effectively ruled out. And, if the new elasticity at the original price falls sufficiently, the transfer of demand may cause price to rise and output to fall even though the marginal cost curve is still falling.

It must be admitted, however, that under conditions of imperfect competition there is a theoretical pos-

sibility that a rise in wages, by transferring demand to the more efficient firms in a trade, may involve no rise in price and no contraction in output. In favourable circumstances, which are likely to be rare in practice, it may even lead to a fall in price and an expansion of output. But against this possibility must be set the probability that the more efficient firms, to which output is transferred, will employ more highly mechanised processes than the less efficient, in which case the maintenance of the total output at its old level would not prevent unemployment from arising.

(4) *The effect of wage pressure on investment.*—Finally, the dangers of checking investment by exerting too much wage pressure must be borne in mind. Three cases can be distinguished.

(i) If efficiency wage rates are raised in a single trade, so as to bring the prospective rate of profit on capital below the level obtainable in other industries, not only will no new investment be undertaken in that trade, but in the long run entrepreneurs will fail to renew part or all of the existing capital; and any failure to keep the existing capital intact must have an adverse effect on employment in that trade.

(ii) If efficiency wage rates are raised in all industries within a single country forming part of an international system, profit margins must narrow, since prices in that country will remain unchanged at the international level (this is true, strictly speaking, only of commodities capable of entering into international trade). Now the volume of new investment in a country as a whole depends on the amount of new capital expenditure which is expected by investors to yield net returns at least equal to the current rate of interest. Any general narrowing of profit margins through a rise

in wage rates must, therefore, tend to lower the rate of investment, assuming the rate of interest to remain unchanged. And a general decline of investment in a country brings in its wake a shrinkage of aggregate output and employment.

(iii) If efficiency wage rates are raised in all industries within a "closed" system, then, assuming no change in the effective supply of money in circulation and therefore no change in the general level of prices, there will be a general contraction of profit margins, with the same consequences as in the previous case.¹

Theoretical analysis thus enables us to state in general terms the limitations within which a rise in rates of wages above the current marginal productivity equivalent may possibly induce employers to improve their organisation and methods, so as to be able to pay these rates without causing any permanent unemployment in the process. But it must be frankly admitted that, in the present state of our knowledge, the economist could give very little practical guidance to a trade union which wished to estimate the most desirable degree of wage pressure to apply to entrepreneurs. Some of the factors involved can hardly, in the nature of things, be estimated quantitatively, *e.g.* the extent to which human inventiveness can solve the problems of technique and organisation created by the increase of wage rates, or the chances that entrepreneurs will avail themselves of other means of escaping from wage pressure. Other factors, however, are capable of quantitative expression, *e.g.* the

¹ The case where the effective supply of money does increase *pari passu* with wage rates can more conveniently be considered in connection with trade cycle analysis. See below, pp. 115 *et seq.*

elasticity of substitution of labour, marginal revenue and marginal cost functions, but the inadequacy of the data at our disposal makes it impossible to estimate them with anything approaching accuracy.

Nevertheless, it would appear very doubtful, on general grounds, whether Mr. Rowe is entitled to assert that the limits within which the policy he advocates can be safely pursued "are probably in most industries, and at most times, appreciably wide". The fact that the improvements induced by such a policy will almost certainly be mainly of a "labour-saving" kind, the existence of alternative means of escape, which are nowadays positively encouraged by most governments, the difficulties of raising efficiency wages with impunity in a country with a fairly extensive foreign trade, and the unlikelihood, in a generally competitive régime, of a rise in wages transferring output to the more efficient firms without raising prices and reducing output, all suggest, on the contrary, that these limits will be exceedingly narrow.

Finally, there is the certainty that if these narrow limits are exceeded investment will shrink, and, in consequence, general economic activity will undergo a contraction. The deliberate harassing of employers by wage pressure would thus appear to be a weapon of very doubtful utility; it is more likely than not to rebound and injure not only the organisation of wage-earners wielding it, but also the community at large.

Any inductive investigation of the effects of wage pressure on the efficiency of entrepreneurs and on unemployment would appear to be virtually impossible, owing to the difficulty of isolating this particular factor from all the others which may possibly affect

technical progress and unemployment. In theorising it may be a simple matter to distinguish between "autonomous" inventions and those which are "induced" by changes of relative factor prices; in practice it is very difficult to classify them in this way. It is usually almost impossible to say whether an invention was made solely in response to a change in relative factor prices, whether its conception was merely accelerated by this change, or whether it had no connection whatever with the change. Again, it is practically impossible, owing to the complexity of the influences affecting the employment situation, to determine by statistical investigation whether the policy of deliberately applying wage pressure has been carried too far in a particular trade. The appearance of abnormal unemployment in an industry with rising wage rates does not establish conclusively a causal relationship between the two; it might conceivably be argued that, in the absence of the stimulus to efficiency provided by rising wages, the other factors at work, *e.g.* a decline in the demand for the industry's product, might have created an even larger amount of unemployment. Neither, on the other hand, does the association of rising real wages with an absence of unemployment in a particular trade necessarily demonstrate that the policy has not been pushed too far; the unemployment caused by too high a wage level does not necessarily arise in the trade where the high wages prevail.

It is commonly argued that experience with minimum wage legislation has provided substantial evidence as to the soundness of the policy of applying wage pressure to entrepreneurs. And certainly all who have investigated the economic effects of the British

Trade Boards system appear to be agreed that the substantial rises in wage rates effected by the Boards have not had the ruinous effects that were forecast ; that they have been partly responsible for an appreciable improvement in the general level of efficiency in these trades ; and that, in consequence, their wage-capacities have increased sufficiently to prevent any undue unemployment amongst the workers attached to them.¹

But even assuming it to be the case that the activities of these Boards have caused no unemployment either in the trades concerned or elsewhere, due consideration must be given to the fact that certain features peculiar to "sweated" and unorganised trades may render successful a wage policy which would produce unemployment if pursued in other trades. There are two features of these trades which are specially significant in this connection. Firstly, some of the employers in "sweated trades" may be "exploiting" their workpeople (in the sense of paying them lower wages than their full marginal productivity equivalent). Where exploitation is present, the raising of wages up to the level of marginal productivity need cause no unemployment. Secondly, in these trades there is usually a considerable diversity of wage rates as between different firms, owing to the complete lack or feebleness of trade union organisation. The effect of minimum wage legislation has been, generally speaking, not to raise wage rates for all employers, but to introduce a greater standardisation on the basis of what the "more reputable employers" are already paying. In a case of this kind, the less

¹ See especially D. Sells, *The British Trade Boards System*, Part III, chapters v. and vi.

efficient firms may be able to meet their increased wage costs by adopting technical and organisational improvements which have already been successfully introduced by the more enterprising firms. They are not confronted with the much more difficult task of *inventing* new methods which will enable them to maintain their profits in spite of the bigger wage rates. We must, in short, distinguish between the extension throughout a trade of existing improved methods, in consequence of the standardisation of wage rates, and the invention of new improvements, in consequence of the raising of standardised rates ; the latter, naturally, being much more difficult of achievement than the former.

General conclusions.—We return now to the question propounded at the beginning of the chapter : Is the general principle of adjusting wage rates to the wage-capacity of each industry capable of a definition sufficiently precise and generally acceptable to serve as a practicable basis for the fixation of wages ? We are bound to answer the question in the negative. Until we know on what scale it is desired to continue an industry, whether any possible repercussions of wage variations on the efficiency of workers and entrepreneurs are to be considered, whether long-period or short-period capacity is to be estimated, and so forth, it is impossible to answer the question : What wage rates can this industry bear ? So varied are the possible interpretations that, as Mrs. Burns has remarked, “ almost any wage may be described as the wage the trade can bear ”.¹ It is, in fact, as impossible, and for the same reasons, to say what is the maximum wage

¹ *Op. cit.*, p. 331.

an industry can bear as to say what is the maximum price consumers will pay for bananas.

But in actual wage negotiations it is usually far more important to be able to decide whether the wage-capacity of a trade has altered since the last settlement, and, if so, in which direction, than to be able to work out from first principles the precise wage a trade can bear. Just as the time-table department of a railway is not confronted with the superhuman task of working out a complicated service *ab initio*, but merely considers what changes are required in the current time-table, so wage negotiators are normally concerned with modifications of an existing scale of rates. It is true that there are times, *e.g.* when a new Trade Board is drawing up its first scale of minimum rates, when an attempt has to be made to thrash out basic principles. On these occasions very wide, genuine differences of opinion may exist between the two parties as to the wage the industry can bear. But once a scale of rates is established it is usually found a much easier task to secure something approaching agreement as to the *direction* of subsequent variations in wage-capacity. It will generally be admitted by both parties that the capacity of a trade to pay has risen if an increase in the demand for its product results in rising profits, expanding output and declining unemployment. This combination of symptoms will be held to set up a *prima facie* case for a rise in wage rates, though, of course, other considerations may be adduced to show why wages should not be raised despite the improved wage-capacity.

Similarly, when depression in an industry causes profits, output and employment to decline, it is clear that its capacity to pay wages has diminished, though,

again, it may not be admitted by both parties that this constitutes an irrefutable case for wage reductions.

Thus the principle of adjusting wages to variations in the wage-capacities of individual industries involves in practice the continuous modification of the structure of wage rates so that higher rates are paid in trades which have become more prosperous (as judged by profits, output and employment) since the previous settlement, and lower rates in those which have become less prosperous. The consequences of applying this principle in practice are examined in the following chapter.

CHAPTER II

WAGE POLICY IN RELATION TO FLUCTUATIONS AFFECTING INDIVIDUAL INDUSTRIES

ANY change in the relative demands for labour in different trades, whether due to improvements in industrial technique, changes in the tastes of consumers, changes in tariffs, or any other factor, creates the problem of transferring workers as rapidly and with as little friction as possible from the trades in which the demand has fallen to those in which it has expanded. Doubtless, in the long run, a redistribution of labour appropriate to any given change in relative demands can be achieved; but in the short period (which may occupy a long interval of time) the immobility of capital, and still more the immobility of labour, make some maldistribution of labour inevitable. This is particularly likely to be the case if movement is required between highly skilled crafts or between trades located in widely separated areas. .

In effecting an occupational redistribution of workers an exceedingly important part is played by wage adjustments. If wage rates were perfectly plastic and labour perfectly mobile, the process of adjustment would be effected as follows. Suppose that a change in the relative demands for labour in different occupations occurs in a labour market which is in complete equilibrium (i.e. two main conditions are fulfilled: (i) wages are equal to the marginal productivity of the

total labour supply, which is consequently fully employed, and (ii) efficiency wages are equal in all trades so that there is no economic inducement for workers to change their occupations). Wage rates will immediately rise in those occupations where the demand for labour has increased and fall in those where it has diminished. The disparity in wage rates thus created will lead to a movement of labour from the low-wage to the high-wage occupations. The influx of workers into the latter will result in a continuous reduction of the wage rates prevailing therein until they are ultimately restored to the general level; the efflux from the former will raise wage rates until they also return to the general level. The movement of labour will continue, in short, until it has eliminated the disparity of wage rates which prompted the transference.

Whether the general level of wages established after this labour redistribution has been completed will be above or below, or will coincide with, the original level must depend on the nature of the factors responsible for the change in relative demands. If the change arises from an improvement in organisation or technique, real wages will almost certainly be higher; if a re-allocation of expenditure through a change in consumers' tastes is the responsible factor, no change in real wages will have occurred when the adjustment is complete; if the exhaustion or increasing cost of natural supplies, or a tendency towards greater national self-sufficiency, is responsible, real wages will be lower.

But we can no longer rely on the labour market, if we ever could, to "find its own level" in this way. The development of collective bargaining and of State

wage regulation has rendered the theory of competitive equilibrium less and less applicable to the problem of wage determination. Wage rates in most trades are the products of bargaining between organisations of employers and workers which are in quasi-monopolistic positions as buyers and sellers of labour. Now it is possible, when bilateral monopoly is substituted for competitive conditions in the labour market, for wage negotiators to reproduce consciously and deliberately the same wage adjustments as would be made if competitive forces were allowed to have full sway. In practice, however, this is seldom, if ever, achieved. The growth of collective bargaining has had the effect of creating and maintaining rigidities in the structure of wage rates which could not have survived for long under genuinely competitive conditions.¹ In particular, the wage policies actually pursued, far from facilitating, are calculated to impede, the transference of labour required by the continual shifts in the relative demands for labour.

The whole process of adjusting the occupational distribution of labour to a change in relative labour demands, clearly consists of two stages: firstly, the creation of a discrepancy between the wages paid to equally skilled workers in different occupations, so as to stimulate a movement of labour; and secondly, the elimination of the discrepancy, as transference takes place. What prospect is there of these two stages being approximately reproduced as a deliberate policy under conditions of collective bargaining? The first stage, viz. the establishment of disparate efficiency wages,

¹ See H. Clay, "The Public Regulation of Wages in Great Britain", in *Economic Journal*, September, 1929, for an examination of the effects of collective bargaining and State regulation on wage rates and employment.

can be, and to quite a considerable extent is, actually achieved. As long as wage negotiators adopt the practice of basing wages on what each trade can bear, it is likely that collective wage regulation will establish rising wage rates in prosperous trades with expanding demands, and falling wages in those with contracting demands.

But this same principle of adjusting rates to variations in the wage-capacities of individual trades may have the effect of *hampering* the second stage of the process, viz. the elimination of the wage disparity through labour transference. The speed of transfer must depend on the number of vacancies that can be created in the occupations with increased demands, which in turn obviously depends on the wage-levels maintained therein. If wage rates are rigidly maintained at their increased level in these prosperous trades, the rate of expansion of employment therein must be comparatively slow. And this, of course, is precisely what is likely to happen as a result of adherence to the principle of basing wages on "what the trade can bear". As long as the prosperous trades continue to enjoy an enlarged demand for their product, they will be considered capable of paying correspondingly higher wages. The fact that workers in depressed trades are willing to transfer and accept jobs in the more prosperous trades at wages lower than those prevailing in the latter is not likely to be allowed to have the effect of bringing down these comparatively high wage rates. No trade union is likely to accept as reasonable the contention that wages ought to be steadily *reduced* in flourishing trades, in order to enable them to expand more rapidly and so absorb the unemployed and lower-paid workers attached to

the depressed trades. Yet this is what is required if the adjustments of a competitive labour market are to be deliberately reproduced under conditions of collective negotiation.

Hence there may arise a deadlock in which workers fail to transfer to better-paid occupations because there are no vacancies for them ; there are no vacancies because wages are kept at too high a level in these occupations ; and wages are kept at this high level because the existence of unemployment and low wages in depressed trades is not accepted as a valid argument for wage reductions in profitable trades.¹ If the occupational redistribution of workers is impeded in this way, one of two effects must follow : either (i) wages in the trades where labour demand has declined must fall and remain permanently at a level which will permit of the absorption into employment of all the workers attached to those trades, or (ii) if it proves impossible to reduce wages to this level owing to trade union resistance, or because in some trades with inelastic demands wages would have to be reduced below a bare subsistence level, some degree of abnormal unemployment will arise among the workers in these depressed trades. In practice we find, during the post-war years, both relatively low wages and heavy unemployment in the depressed and contracting industries, as compared with

¹ Professor Pigou drew attention to this deadlock in his evidence to the Macmillan Committee, though he did not explicitly attribute it to the practice of basing wages on what the individual trade can bear. See *Minutes of Evidence*, Q. 5964 : " One of the reasons why wages do not go down in industries where at present, they are, as I say, too high, is that the people from the other industries do not go there and push them down, and, on the other hand, the people in the other industries do not go there and push them down because they know there is no work for them ; so you get this impasse to which I refer in my notes." A similar reply was given to Q. 5989.

those which are prosperous and expanding. We turn now to an investigation of the relation between wage policy, industrial transference and the post-war unemployment problem.

THE POST-WAR PROBLEM OF INDUSTRIAL TRANSFERENCE

It is popularly held that, although in certain trades (more especially those, such as coal and cotton, in which there appears to be little likelihood of demand returning to a level which will make possible the absorption into employment of all the workers still attached to them) the solution of the unemployment problem must be found in industrial transference of labour, it is difficult, if not impossible, to find industries into which these surplus workers can be transferred. To this argument Professor Cannan made the common-sense reply that "to question the existence of vacancies for new workers because you cannot see them is rather like questioning the growth of trees because you cannot see the additions to height and width and girth before they are there. Thirty years ago there was no employment in the manufacture, repair, maintenance and housing of motor vehicles. Hundreds of thousands of vacancies for new men and boys in this employment have since come into being and been filled up without their existence being in any way forced on our attention."¹

He went on to point out that "while the demand for any particular kind of labour is always strictly limited, the demand for labour in general, properly

¹ Review of the Report of the Industrial Transference Board in *Economic Journal*, December, 1928, p. 674.

distributed, is unlimited except by the supply". If by this he meant that jobs can be found for all available workers, provided that they are appropriately distributed between the various industries, and provided also that they are willing to work at rates of pay which will induce employers to absorb them all into employment, nobody can quibble with the statement. But the abnormal post-war unemployment arose from the fact that labour was *not* appropriately distributed, and the structure of wage rates made it impossible to effect any rapid correction of the maldistribution. Under such conditions the demand for labour in general may be less than the supply, so that jobs *cannot* be found for all workers.

Admittedly common sense tells us that as long as there are masses of people with unsatisfied wants there must be potential jobs for millions of workers; but whether these potential vacancies become actual ones must depend upon whether there exists an appropriate structure of wage rates. The popular view of the industrial transference problem, therefore, which, of course, takes for granted the structure of wage rates, has more justification than Professor Cannan was prepared to admit. Wage rates have not been too rigid to block entirely the occupational redistribution required by post-war influences. On the contrary, a steady shifting of labour has taken place year by year. But wages have certainly been too rigid, more particularly in the expanding and profitable trades, to permit of any very rapid solution of the problem of transference. And, as Professor Cannan emphasised, "if much suffering is to be avoided, a very large transference must be effected quickly".¹

¹ *Ibid.*, p. 675.

On the other hand, the absence of any considerable number of obvious vacancies has led some writers to the false conclusion that maldistribution of labour has been a comparatively unimportant influence in the causation of the abnormal unemployment of the post-war period, and that, in consequence, large-scale industrial transference is not the remedy required. Professor Pigou, for instance, was at one time (1927) prepared to argue on the following lines: "No doubt a part of this extra unemployment is due to the abnormal growth of the metal industries during the war, and to the fact that the distribution of work-people between different occupations has not even yet been adjusted to peace-time conditions. Had this been a dominant factor, however, we should have expected to find a marked shortage of labour in important groups of industries to balance the excess in engineering, shipbuilding and so on; and of such marked shortage there is no sign. . . . A factor other than ill-adjusted distribution of labour must, it would seem, have been at work."¹

But there is no reason why we should expect a maldistribution of labour to be characterised by the existence of unfilled vacancies in one group of industries approximately equal in number to the surplus workers attached to the overcrowded industries. In

¹ "Wage Policy and Unemployment", in *Economic Journal*, September, 1927, p. 356. Professor Pigou has evidently modified his views on this matter very considerably since the article was written. In his evidence before the Macmillan Committee he attributed the abnormal post-war unemployment to a combination of high wage rates and maldistribution of labour, and advocated wage reductions in the high-wage industries to make vacancies for the surplus workers of the overcrowded industries. (See especially *Minutes of Evidence*, Qs. 5953, 5965-7, 6042.) He has made a rigorous analysis of the influence of wage policy on unemployment in his more recent *Theory of Unemployment*, especially in Part V.

fact, in view of the general practice of regulating wages according to the estimated capacity of individual industries to pay, we can reasonably expect wages in the more prosperous industries to be raised to a level at which there is little or no excess of demand for labour over the supply already attached to the industries in question, i.e. at which there are comparatively few vacancies into which the unemployed workers of the depressed industries can move. It is, indeed, conceivable that maldistribution might exist in a system in which there were no vacant places to be filled and no unemployed workers seeking jobs. In such circumstances the symptom of maldistribution would be the disparity of efficiency wages in different occupations; wages in some trades would be "unfair", in the technical sense of the term.

HIGH WAGES AND POST-WAR UNEMPLOYMENT

Professor Clay, in criticising Professor Pigon's original view that high wages rather than maldistribution of labour were the dominant cause of the abnormal post-war unemployment, submitted a threefold classification of the possible causal connections between high wage levels and high unemployment:¹

"1. All or most of the wage rates may be 'too high', having moved up together, or stayed up together when prices fell, thus causing generally diffused unemployment in industry.

"2. Some wage rates may be 'too high', thus causing in the industries in which they have to be paid the bulk of the unemployment in the country.

¹ "Unemployment and Wage Rates", in *Economic Journal*, March, 1923, pp. 4, 5 (reprinted in *The Problem of Industrial Relations*).

“ 3. Some wage rates may be ‘ too high ’, not in the sense that they cause unemployment in the industries in which they have to be paid, but in the sense that they involve a level of charges to other industries, that depend on them for services or products, so high that unemployment is caused in these other industries.”

After examining the main features of the post-war unemployment problem in this country, Professor Clay rejected the first and third of these possible explanations on the ground that they could not account for the marked concentration of unemployment in certain industries, and was left with the conclusion “ that so far as ‘ high wages ’ are the explanation of the present unemployment, it is the low wage rates of the depressed industries that are ‘ too high ’, not the high wages of the prosperous industries ”. Hence he found it difficult to accept the argument that high wages rather than maldistribution of labour were the principal explanation of the abnormal unemployment from which we were suffering at the time.

With this conclusion the present writer entirely disagrees. In his opinion the main cause of the continued unemployment in the depressed industries and the main hindrance to a rapid correction of the maldistribution of labour to which Professor Clay drew attention was, and still is, to be found in the comparatively high wages prevailing in the more prosperous trades. Professor Clay omitted from his analysis of the relations between high wages and unemployment a *fourth* case, which has probably been far more significant than any of the three he enumerated, viz. some wage rates may be “ too high ”, not because they induce unemployment in the trades where they have to be paid, but because they prevent the creation, in sufficient

numbers, of vacancies into which the surplus workers attached to industries suffering from contracting demands can move.

In view of the large wage reductions which have been made in our staple export trades to meet the exigencies of international competition, it can hardly be claimed that post-war unemployment has been predominantly due to rigidity of wages of the first type in Professor Clay's classification. Neither, in view of the fact that unemployment has been most severe in the industries in which the largest wage reductions have been made, and lightest in those with the highest wage rates, can it be contended that the concentration of unemployment in the former group is attributable to the high wages prevailing therein. Professor Clay himself is of the opinion that the third type of rigidity of wages has not been a particularly significant factor causing unemployment, except possibly in the case of the wages of railwaymen and public employees.

Railway wages have certainly been distinctly higher than those in most other industries. Reference to the tables given later in the chapter shows that the average weekly earnings of the conciliation grades of railwaymen were 65s. 1d. in 1924, 63s. 7d. in 1931 and 63s. 1d. in 1935; the average earnings of male workers in a wide group of expanding, and, on the whole, prosperous trades were in the same years 60s. 5d., 59s. 10d. and 60s. 6d.¹ Railwaymen, therefore, despite the influence of trade depression and road competition on their industry, have succeeded in maintaining earnings at a level above that enjoyed by the average worker in the prosperous trades, and much higher than that prevailing in the depressed industries. As regards the earnings

¹ See Table IX, p. 58.

of public employees, a distinction must be drawn between those employed by local authorities and those employed in central government establishments. The average weekly earnings of male workers employed in local authority non-trading services were 51s. 7d. in 1924, 52s. 8d. in 1931 and 52s. 8d. in 1935. Comparison with the average earnings in other trades shows that local authority employees were paid wages about equal to the average of those paid in the depressed industries and considerably below the average for the prosperous industries. They cannot, therefore, be fairly described as "high". Employees in Government industrial establishments, on the other hand, were amongst the better-paid workers, their earnings on the same dates being 65s. 8d., 58s. 7d. and 67s. respectively. In their case there may perhaps be a little more justification for the view that high wages have added to the burden of taxation borne by industry. But though "high" wages in these industries may have imposed somewhat heavier charges on railway users, ratepayers, and taxpayers, it would be absurd to contend that the continuance of severe unemployment in the depressed trades is due to this factor; at the most it can only have been a slightly accentuating influence.

The fourth type of rigidity of wages, which we have added to Professor Clay's list, does appear to explain satisfactorily the difficulties Great Britain has experienced in attempting to reduce the burden of unemployment in the depressed industries. The post-war unemployment problem has proved intractable owing primarily to the impossibility of effecting a rapid and large-scale transference of workers from those trades which found themselves faced with a more or less permanent shrinkage in demand. Industrial trans-

ference has been difficult and too slow to meet the situation, not only on account of the usual hindrances to mobility, but also because it has been impossible to point to any considerable number of vacancies into which the unemployed could move. And this scarcity of vacancies must, in turn, be attributed to the maintenance of wages in the comparatively prosperous trades at levels which, though within their capacity to pay as commonly interpreted, have not created a sufficient excess of demand for workers over the supply already attached to those trades, to make possible the absorption of all the surplus workers of the overcrowded industries.

The difficulties of comparing efficiency wages in different trades.—A statistical examination of the relative movements of wages in the expanding and contracting trades supports this diagnosis of the causes of the continuance of abnormal unemployment in the depressed industries after the war. It must be candidly admitted, however, that the available statistical evidence is too inadequate to permit of a completely satisfactory comparison of the wage-levels in these two groups of industries. There is no difficulty in ascertaining in which industries employment is expanding and in which it is contracting, as the Ministry of Labour has, since 1923, published in its *Gazette* an annual analysis of changes in the number of insured workers in the various trades covered by the Unemployment Insurance Scheme. The evidence relating to relative wage-levels is, however, less satisfactory. The main source of information as to *rates* of pay (whether time rates or piece rates) is the *Ministry of Labour Gazette*, which regularly reports changes in the standard rates of pay. As to *earnings*, information is regularly

published for a few industries (e.g. for coalmining in the reports of the Mines Department; for iron and steel in the annual volume, *Statistics of the Iron and Steel Industries*, published by the British Iron and Steel Federation); but for the majority of trades the only information is that obtained from the employers' returns collected in the wage inquiries periodically made by the Ministry of Labour. These inquiries have been made, in the post-war period, in 1924, 1928, 1931 and 1935.

For our present purpose, we require to make a comparison between average efficiency earnings in different industries over the post-war period; i.e. we want to know what average weekly earnings a worker of given efficiency could expect to receive in different industries over this period. *Rates* of wages are clearly not very helpful in this connection as they tell us little about average earnings, especially in trades where piece rates are paid. We might proceed on the assumption that relative wage rates were roughly at their skill parities before the war, and that any inequality between the percentage changes in these rates since the war is a fairly reliable indication of the disparity of efficiency earnings. The objections to this method are, firstly, that earnings do not necessarily vary by the same percentage as rates, nor even in the same direction. A reduction in piece rates may be followed by an increase in average earnings, owing to improvements in methods of production. Secondly, it has since been generally admitted that the workers in certain occupations (e.g. railwaymen, teachers, "sweated" workers) were relatively "underpaid" before the war. Although it is commonly assumed that the years immediately preceding the war were fairly

"normal", they were by no means a period of economic stability, and we are not entitled to assume that wages in most trades were on the whole "fair". And thirdly, so many new jobs have come into existence, especially in the developing industries, and so many old jobs have completely changed in character since pre-war days, that there is no justification for assuming that disparate percentage increases of the rates paid in different occupations since 1914 give us a measure of the present disparity of efficiency wage-levels. This method of comparing efficiency earnings in the expanding and contracting trades has therefore been rejected. 11869

On the whole, it seems better to try to get some general idea of the relative levels of efficiency wages by means of a direct comparison of the average weekly earnings of male workers in the four years 1924, 1928, 1931 and 1935. There are, admittedly, certain weaknesses in such a method. The average earnings of male workers in a trade are influenced by the relative proportions of juveniles and adults, and of skilled, unskilled and semi-skilled workers. Efficiency wage rates might, for instance, be equal in two trades, yet average earnings might be higher in one than in the other, owing to its employing a higher proportion of skilled workers. Unfortunately, the Ministry of Labour's wage inquiries give us no indication of the proportions of skilled and unskilled in the various trades; and only the returns for 1935 give separate figures for the average earnings of juvenile and adult male workers. All we can do in the face of this difficulty is to assume that the average proportions of skilled and unskilled, and of juveniles and adults, in a wide group of expanding trades do not differ appreciably from those

in an equally wide group of contracting trades.

Even, however, if we had more detailed information showing the relative earnings of "skilled" and "unskilled" workers in different trades, there would still remain the difficulty of comparing the different degrees of skill possessed by the "skilled" workers in those trades; we have no common denominator for comparing the skill required in engine-driving, coal-hewing, steel-melting and so on. Consequently it is not always safe to assume that a disparity between the earnings of "skilled" workers in two occupations necessarily indicates unequal efficiency wages. However, where comparisons are made between trades employing processes of very similar character (e.g. the different sections of the textile group or of the engineering group), conclusions as to the relative levels of efficiency wages can be drawn from the meagre information available with some degree of confidence.

A COMPARISON OF WAGES IN THE EXPANDING AND CONTRACTING INDUSTRIES

The statistical tables which follow are intended to show: (1) the relative levels of wages in the expanding and contracting sections of the engineering industry; (2) the relative wage-levels in the expanding and contracting textile trades; and (3) the relative average earnings in two broad groups, comprising all the expanding and contracting industries for which the necessary information is available.

(1) *The Engineering Industry*.—Table I shows, for the principal branches of the engineering industry, the estimated number of insured workpeople in July, 1936

and the percentage increase in this number since July, 1923.¹

TABLE I

Industry	Estimated Number of Insured Persons aged 16 to 64 inclusive in July, 1936	Percentage Increase or Decrease since July, 1923
Manufacture of heating and ventilating apparatus	14,840	+ 173.5
Electrical engineering .	101,700	+ 70.1
Motor vehicles, cycles and aircraft	314,000	+ 65.6
Constructional engineering .	36,120	+ 59.4
General engineering, etc. .	559,720	- 12.8
Marine engineering, etc. .	49,960	- 22.2

In addition, the census returns for 1931 show that the number of workers engaged in agricultural engineering declined from 36,561 to 17,132 between 1921 and 1931, and in textile engineering from 75,500 to 50,965.

Table II shows for these various branches of the engineering industry the average weekly earnings of male workers in one week of October, 1924, 1931 and 1935.* The average number of hours lost through short time or gained through overtime by all the workers, male and female, covered by the returns, is also given for each branch in order to indicate the extent to

¹ Extracted from the tables in the *Ministry of Labour Gazette*, November, 1936, pp. 414-15.

* The table is compiled from information published in the *Ministry of Labour Gazette* for June, 1926 to September, 1927, January to March, 1933, and February to May, 1935. No figures for 1923 are included in this table as the returns for that year (published in the *Gazette*, October to December, 1929) were not sufficiently detailed so far as the engineering trades were concerned.

which the discrepancy in earnings is due to variations in the hours worked.

TABLE II

Trade	Average Weekly Earnings of Male Workers			Average Time Lost (-) or Gained (+)		
	1924	1931	1935	1924	1931	1935
	s. d.	s. d.	s. d.	Hours	Hours	Hours
<i>Expanding trades :</i>						
Motor engineering . . .	62 0	61 8	69 6	- 0.4	- 2.0	+ 1.3
Aircraft engineering . .	58 7	58 10	63 10	..	- 1.1	+ 3.2
Heating and ventilating engineering	58 3	60 7	58 4	- 0.1	- 1.3	+ 2.6
Constructional engineering	53 9	53 3	56 5	- 0.2	- 1.8	+ 2.5
Electrical engineering .	52 8	50 11	53 5	- 0.2	- 0.9	+ 2.1
<i>Contracting trades :</i>						
General engineering . . .	51 9	50 4	55 11	- 0.6	- 3.0	+ 2.1
Marine engineering . . .	52 2	46 1	55 4	- 0.3	- 4.1	+ 0.8
Agricultural engineering .	47 0	40 7	47 5	- 1.5	- 6.0	- 1.1
Textile engineering . . .	44 2	43 3	47 1	- 7.2	- 9.0	- 4.0

In each of the three years 1924, 1931 and 1935 average earnings were higher in all the expanding branches of the engineering industry than in any of the contracting branches, the single exception being electrical engineering in 1935. The comparatively low figure for this trade is due, however, to the unusually high proportion of juveniles employed, nearly one-third of the male workers included in the returns of 1935 being under 21. The following table gives the average weekly earnings of *adult* male workers in the various sections of the engineering industry in 1935, the only year for which this information is available:

TABLE III

AVERAGE WEEKLY EARNINGS OF ADULT MALE WORKERS IN THE
ENGINEERING INDUSTRY IN THE WEEK ENDED OCTOBER 12TH, 1935

<i>Expanding trades :</i>	s.	d.
Motor engineering .	78	5
Aircraft engineering .	74	10
Heating and ventilating apparatus	68	1
Constructional engineering	65	0
Electrical engineering .	66	11
<i>Contracting trades :—</i>		
General engineering .	66	0
Marine engineering .	65	4
Agricultural engineering .	55	11
Textile engineering .	54	10

Both tables bring out the wide gap between the average earnings in motor and aircraft engineering on the one hand and general engineering on the other ; and a very wide gulf separates the earnings of the most and least prosperous sections of the industry. Moreover—and this is the most significant feature so far as concerns the argument of this chapter—there appears to be no tendency towards the elimination of this disparity in earnings. On the contrary, average earnings in the motor and aircraft sections increased by a greater percentage between 1924 and 1935 than average earnings in any other branch of the industry, so that the disparity was becoming rather greater. Hence, so far as labour movement within the engineering industry is concerned, it seems certain that, despite the expansion of the more prosperous sections and the contraction of the depressed, there has been no tendency since 1924 towards the equalisation of efficiency wages.

(2) *The Textile Trades.*—Table IV shows for the principal textile trades the estimated number of insured workers in July, 1936, and the percentage increase in this number since July, 1923:

TABLE IV

Trade	Estimated Number of Insured Persons aged 16 to 64 inclusive in July, 1936	Percentage Increase or Decrease since July, 1923
Silk and artificial silk	80,130	+120.7
Hosiery	118,430	+ 34.0
Linen	73,680	- 7.4
Woollen and worsted	223,310	- 13.9
Jute	30,540	- 22.6
Cotton	420,850	- 24.9
Lace	14,950	- 26.1

In Table V are given for these seven textile trades the average earnings of male workers in one week of October in the years 1924, 1928, 1931 and 1935, together with the number of hours lost or gained through short time or overtime. The same features

TABLE V

Trade	Average Weekly Earnings of Male Workers				Average Time Lost (-) or Gained (+)			
	1924	1928	1931	1935	1924	1928	1931	1935
	s. d.	s. d.	s. d.	s. d.	Hours	Hours	Hours	Hours
<i>Expanding trades :</i>								
Silk and artificial silk	61 0	62 0	60 1	61 7	-1.4	-2.7	-2.9	+0.1
Hosiery	54 7	57 10	58 8	63 0	-1.4	-1.2	-1.4	+0.1
<i>Contracting trades :</i>								
Linen	41 3	38 2	36 8	38 4	-0.7	-3.6	-1.2	-1.4
Woollen and worsted	53 10	52 1	49 4	49 8	-1.9	-3.7	-2.4	+1.3
Jute	41 9	44 8	41 0	42 2	-0.1	-0.2	-1.3	+0.1
Cotton	47 7	48 2	43 3	44 9	-2.4	-1.7	-1.9	-0.7
Lace	52 5	*	56 4	59 0	-5.4	-1.6	-1.5	-1.6

* No separate figure for male earnings available in 1925

that we noticed in comparing wage-levels within the engineering industry appear also in the textile group. In all four years, average earnings were higher in both the expanding trades than in any of the contracting ones. And again the tendency appears to be for the disparity between earnings in the two groups to become wider rather than narrower. In 1935, as compared with 1924, wages in the silk and artificial silk trades had improved very slightly and in the hosiery trade very considerably; in the linen, woollen and worsted, and cotton trades the wage position had deteriorated; in the jute trade there had been a slight improvement; the lace trade alone, in the contracting group, had shown a definite increase in wages.

Table VI, giving the average earnings of *adult* male workers in these trades in 1935, shows that the relative wage-levels indicated in the previous table are not appreciably affected by differences in the proportions of juvenile workers to the total.

TABLE VI

AVERAGE WEEKLY EARNINGS OF ADULT MALE WORKERS IN THE TEXTILE TRADES IN THE WEEK ENDED OCTOBER 12TH, 1935

<i>Expanding trades :</i>			<i>Contracting trades :</i>		
	s.	d.		s.	d.
Silk and artificial silk	67	0	Linen	45	0
Hosiery	72	3	Woollen and worsted	55	3
			Jute	48	10
			Cotton	49	9
			Lace	64	11

(3) *Expanding and Contracting Groups of Industries.*

—Tables VII and VIII show the average weekly earnings of male workers in the selected weeks in October of 1924, 1931 and 1935 respectively for two broad groups of expanding and contracting trades. The first group comprises all those trades for which

information about earnings is available and in which the number of insured workers expanded between July, 1923 and July, 1936 by more than the average for industry as a whole (which was 19·5 per cent). The

TABLE VII

AVERAGE WEEKLY EARNINGS OF MALE WORKERS IN THE
EXPANDING TRADES

Trade	Average Weekly Earnings					
	1924		1931		1935	
	s.	d.	s.	d.	s.	d.
Building and public works contracting	59	11	58	5	55	4
Brick, tile, pipe, etc., making . . .	53	1	50	9	50	5
Stone and slate quarrying . . .	52	9	51	0	47	0
Motor engineering	62	0	61	8	69	6
Electrical engineering	52	8	50	11	53	5
Heating and ventilating apparatus .	58	3	60	7	58	4
Constructional engineering . . .	53	9	53	3	56	5
Stove, grate, pipe, etc., and general iron founding	52	10	52	5	58	11
Iron and steel tubes	54	3	52	9	58	9
Silk and artificial silk	61	0	60	1	61	7
Hosiery	54	7	58	8	63	0
Shirts, collars, underclothing, etc. .	53	6	52	0	53	10
Carpets	50	7	47	2	51	4
Printing, publishing and book-bind- ing	76	3	77	10	82	6
Cardboard boxes, paper bags and stationery	58	11	59	8	62	6
Wallpaper making	52	11	52	2	51	3
Furniture making, upholstering, etc.	57	6	53	1	54	4
Grain milling	59	3	61	9	60	0
Laundries, dyeing and dry cleaning .	48	0	46	6	47	6
Tramway and omnibus services . .	70	3	66	10	69	1

most important omissions from this group are the non-trading services of local authorities, the distributive trades and road transport. The first is omitted because the capacity of the particular industry to pay is not a basis for determining the wages of these public

employees ; the last two are omitted because there is no comparable information as to earnings available.

TABLE VIII

AVERAGE WEEKLY EARNINGS OF MALE WORKERS IN THE
CONTRACTING TRADES

Trade	Average Weekly Earnings					
	1924		1931		1935	
	s	d	s	d	s.	d.
Mining of iron, lead, tin, copper, etc.	48	5	52	10	51	1
Coal mining*	53	1	44	8	49	0
Pig iron manufacture	52	4	54	5	63	8
Steel melting and iron puddling, iron and steel rolling and forging	61	0	54	11	64	9
Tinplate manufacture	72	2	62	2	58	3
General engineering, engineers' iron and steel founding	51	9	50	4	55	11
Marine engineering	52	2	46	1	55	4
Shipbuilding and ship repairing	54	4	51	10	54	4
Carriages, carts, etc.	55	9	54	3	60	9
Watches, clocks, plate, jewellery, etc.	59	8	58	3	58	5
Bolts, nuts, screws, rivets, nails, etc.	44	0	41	10	49	3
Brass and allied metal wares	51	1	48	9	48	8
Cotton	47	7	45	3	44	9
Woollen and worsted	53	10	49	4	49	8
Linen	41	3	36	8	38	4
Jute	41	9	41	0	42	2
Lace	52	5	56	4	59	0
Textile bleaching, printing, dyeing, etc.	56	10	48	6	50	9
Dressmaking and millinery	49	1	55	1	55	9
Boots, shoes, slippers and clogs	53	4	52	8	52	0
Leather goods	50	11	50	7	49	0
Railway service (conciliation grades)†	65	1	63	7	63	1
Dock, harbour, river and canal service	78	1	71	7	68	9
Cement, limekilns and whiting	61	10	65	3	62	0
Tobacco, cigars, cigarettes and snuff	67	7	58	10	75	1
Wood boxes and packing cases	49	6	43	11	48	2

* Figures of miners' wages are the average weekly earnings in the last quarter of each year, extracted from the Annual Reports of the Secretary for Mines.

† Figures of railwaymen's wages relate to one week in March of each year, and are taken from the annual returns of the Ministry of Transport.

The second group comprises all those trades for which information as to wages is available and in which the number of insured workers diminished between 1923 and 1936. Employees in Government industrial establishments have been omitted for the same reason as local government workers.

For the expanding group as a whole the average weekly earnings in the years 1924, 1931 and 1935 were 60s. 5d., 59s. 10d. and 60s. 6d. respectively. (These averages have been calculated by weighting each wage figure by the number of male workers actually employed in the corresponding trade in the month in which the wages were paid.)

For the contracting group as a whole the average earnings in the three years were 55s. 10d., 51s. 9d. and 54s. 7d. respectively. To facilitate comparison Table IX brings together these averages for the two groups.

TABLE IX

	Average Weekly Earnings			Increase or Decrease, 1924-35
	1924	1931	1935	
	s. d.	s. d.	s. d.	s. d.
Expanding industries .	60 5	59 10	60 6	+0 1
Contracting industries .	55 10	51 9	54 7	-1 3

These figures indicate the same general tendencies as those relating to the textile and engineering trades previously examined. The disparity in earnings between the two groups, which was already quite considerable in 1924, tended on the whole to become wider rather than narrower in the subsequent years.

The contrast between the two groups would have been much more marked but for two factors: (a) the success of the large group of railwaymen in maintaining

a comparatively high level of wages despite the shrinkage of profits and of employment in the railway industry, and (b) the steady decline over the period as a whole in the wage rates and average earnings of building and allied workers, despite the huge expansion of employment in building and contracting. The building and allied trades were employing over a million male workers in October, 1935 and are, therefore, very heavily weighted in the average figure for the expanding group. If we exclude these two groups of railway workers and building workers (including those employed in brick-making and quarrying), the movements of whose wages have provided important exceptions to the general rule of low and falling wages in depressed trades and high and rising wages in prosperous, we get the results shown in the following table. This shows a very considerable widening of the gap between the earnings of the two groups.

TABLE X

	Average Weekly Earnings						Increase or Decrease, 1924-35	
	1924		1931		1935			
	s.	d.	s.	d.	s.	d.	s.	d.
Expanding industries (ex- cluding building and allied trades)	62	0	62	0	65	9	+3	9
Contracting industries (ex- cluding railway service)	54	6	49	5	53	2	-1	4

"Sheltered" and "unsheltered" wages.—It has been usual, in post-war discussions of the "rigidity of wages", to contrast wage rates in the so-called "sheltered" and "unsheltered" trades. Wage reductions have, on the whole, been more successfully resisted in industries catering for the home market,

and subject to little or no foreign competition, than in those dependent on markets in which prices have to be adjusted to what foreign competitors are able to charge. And, without doubt, the resistance to wage cuts in the sheltered trades, during the period when we were struggling under adverse circumstances to keep on the gold standard, did add to the difficulties of the unsheltered, both by increasing the charges which the latter had to incur and by keeping up the cost of living to the recipients of incomes in those trades. But, in my opinion, the contrast between sheltered and unsheltered wages is by no means the most significant aspect of post-war wage policy. The industries in which wages have been maintained at comparatively high levels are certainly, in many cases, sheltered from foreign competition (*e.g.* railways, building, printing, tramway and omnibus services, docks and harbours); but this is not true of all of them (*e.g.* artificial silk, hosiery, grain milling, cardboard boxes, paper bags and stationery, heating and ventilating apparatus).

A more significant characteristic of the high-wage industries (with certain exceptions, such as railways and dock, harbour, river and canal services) is the fact that they have been sufficiently prosperous on the average to induce expansion at a greater rate than that for industry as a whole. The demands for the products of these industries, as reflected in the derived demands for labour, have not merely kept pace with the growth of population, but have increased more rapidly than population. They therefore constitute a group of trades in which, in view of the practice of adjusting wages to what it is estimated the individual industry can bear, relatively high wages can reasonably be

expected to prevail. High wages have been maintained, and even raised, in these industries, not so much because organised labour found itself in an exceptionally strong position to resist drastic wage reductions, as because their prosperity has warranted, according to current wage practices, the continuance of comparatively high rates of pay.

The equalisation of efficiency wages in the expanding and contracting industries.—In my opinion the solution of the post-war problem of industrial transference, through which alone the unemployment in the depressed industries is likely, in the long run, to be reduced to normal proportions, can be effectively achieved only by restoring the high wage rates prevailing in the more prosperous trades to a level nearer to the average for industry as a whole. If the general level of wages remains stable, this implies an absolute reduction of wage rates in these trades; if the general level rises, it implies a halt in the improvement of wages in these trades until the disparity in efficiency rates has been corrected. Such an adjustment of wage rates would have a threefold effect on the depressed industries: (i) by increasing the number of vacancies in the expanding trades, it would speed up the transfer of surplus workers from the overcrowded industries; (ii) by stimulating a still more rapid expansion of the industries which are already fairly prosperous, it would help to increase the demand for the products of the depressed industries; and (iii) in so far as the depressed industries incur costs by buying the products of the flourishing trades, it would help to reduce the costs of the former.

One important objection can be urged against such a proposal. Professor Clay, for instance, who more than

any other economist has drawn attention to the significance of the maldistribution of labour in post-war Britain, writes as follows: "No policy of wage regulation by itself can cure the maldistribution, because it is not practicable to force wages in the overcrowded industries down to the level at which all the workers in them could be absorbed in employment, nor probably to raise them without causing more unemployment; and the reduction of wages in the more fortunate industries, even if it eased the difficulties, by reducing the costs, of the depressed industries, would lessen the existing incentive to labour to shift from the overcrowded to the developing industries."¹ If this argument is sound, the emergence of a maldistribution of labour must always place us in a dilemma. For if it is the case, as has been contended above, that vacancies can only be created in considerable numbers in the prosperous trades by reducing wage rates to a level which creates an excess of demand for labour over the supply immediately available, and if, on the other hand, any reduction of wages in these prosperous trades will discourage workers from migrating from the overcrowded trades so as to fill these vacancies, it looks as though any maldistribution, once created, can be expected to continue more or less indefinitely.

There is, actually, no such dilemma. If a net influx of labour into a particular group of industries is desired, two conditions, *inter alia*, must be fulfilled:—

(1) The average earnings which can reasonably be expected in the industries in question (taking into account, of course, the risks of unemployment) must be greater than the incoming workers could have

¹ *The Problem of Industrial Relations*, p. 102.

secured elsewhere, either in wages or in unemployment benefit, by an amount which will at least compensate for the various costs involved in moving into these industries. In the case of new entrants into industry this margin of compensation will not arise. But the fulfilment of this condition alone cannot, as is frequently assumed, be relied on to induce a transference of labour.

(2) The second condition is that there must be vacancies in the occupation offering the higher wages. A worker who already has a job is not likely to throw it up and try his luck in an industry paying higher wages, if he knows that vacancies in that industry are few and far between; and the unemployed man will certainly remain unemployed and live on his benefit or allowance if no vacancy is available for him, however attractive full wages may be as compared with his present meagre income.

The reduction of wage rates in the relatively prosperous industries, as long as they are not brought below the level prevailing in the depressed trades, is calculated to secure the fulfilment of both these conditions. It would create the vacancies to be filled and would still leave the unemployed, as well as the lower-paid employed attached to the overcrowded industries, with an economic inducement to transfer and fill those vacancies.

WAGE POLICY IN RELATION TO TECHNOLOGICAL UNEMPLOYMENT

There is another problem in relation to which the policy of basing wages on what the individual trade can bear is highly significant: the problem of "techno-

logical unemployment". The recent world-wide depression has brought once more into the field of popular controversy the old question of the relation between technical progress and unemployment. Fears are being expressed lest the pace of scientific progress should overreach itself by creating so much unemployment that masses of people will be unable, through lack of purchasing power, to buy the cheapened products of industry. It is a strange paradox that the one factor on which any future rise in the general standard of living must mainly depend should be feared as a potential cause of unemployment and widespread poverty.

Fundamentally, the effect of any improvement in the technical efficiency of an industry is simply to make possible the production of a given output by utilising a smaller quantity of productive resources, so that some resources are released for the production of additional commodities which could not otherwise have been produced at all. If the demand for the product of the industry in which the technical improvement is made is elastic, some, possibly all, of these released resources will be absorbed into employment in that industry (provided, of course, that the price of the commodity is reduced by the amount of the reduction in cost). If the demand is inelastic the bulk of the released resources will be diverted to other industries, on the products of which income receivers will now spend a larger proportion of their incomes.

Hence an essential characteristic of any community in which technical progress is continuously being made is a steady occupational redistribution of the working population. In a closed and progressive

economic system a smaller proportion of the population will be employed, as time goes on, in the production of foodstuffs and cheap manufactured commodities (for which the demand is inelastic), and an increasing proportion in the production of luxury commodities and personal services (for which the demand is relatively elastic). A declining agricultural population, though it may be regretted on non-economic grounds, is an inevitable concomitant of technical progress in any community whose population is stationary or increasing only at a slow rate.

If this redistribution of labour is to be effected in the shortest possible time, so as to minimise the unemployment inevitably arising in the short run from technical progress, two important conditions must be fulfilled. Firstly, the reduction in costs of production arising from technical improvements must be immediately followed by corresponding reductions in prices, otherwise there can be no expansion of demand, either in the trades where these improvements are made or elsewhere. And unless the demand in some direction does expand, the "saved" resources will simply be wasted, the only effect of the technical improvement being a transfer of income from the owners of these wasted resources to entrepreneurs. Secondly, wage rates in the industries enjoying the expanding demands must not be forced up and maintained at a comparatively high level, otherwise some, if not all, of the released resources will be wasted through failure to find employment in these industries.

Under present-day conditions we cannot confidently rely on either of these requirements being fulfilled. The extension of trusts, cartels, rings and other types of

of wage regulation is needed. There appear to be three main alternatives to the policy we have criticised.

(1) The first is to return to a competitive labour market in which the forces of supply and demand are free to establish equilibrium rates of wages. Such a policy must obviously be ruled out as impracticable in view of the fact that collective bargaining has become a deeply rooted institution. Trade unions, statutory wage boards, unemployment insurance and all the other institutions which restrict the scope of competition in the labour market have clearly come to stay, and must be accepted as data in formulating any realistic wage policy.

(2) The second alternative is that fluctuations in the relative demands for labour in different trades should not be allowed to create any disparity between the wage rates of the trades concerned: they should not fall relatively in the trades with reduced demands nor rise in those enjoying expanded demands. Such a policy would necessarily result in unemployment when the demand for labour in a particular trade dropped for any reason; but, on the other hand, it would possess the merit of creating vacancies in the trades with increased demands into which these unemployed could be moved. Under such an arrangement industrial transference would not be slowed down through a lack of jobs to be filled; its speed would depend on the various factors affecting the mobility of labour, and particularly on the speed at which workers could be trained for jobs in the expanding trades. Whereas, at present, governments are half-hearted in promoting schemes for training the unemployed, owing to the scarcity of obvious jobs in which to place them, under the arrangement we are considering there

would be every inducement to make a government scheme for training the unemployed as efficient and permanent a part of our economic organisation as the Employment Exchanges have become.

If labour were perfectly mobile, the policy under consideration would be vastly preferable to that which is at present pursued. The workers who found themselves surplus to requirements in the trades with reduced labour demands would immediately be able to move into the vacancies awaiting them in the trades with increased demands. As, however, owing to difficulties of training, of moving to places where jobs are available, and similar hindrances, the labour force is necessarily somewhat immobile in the short run, there arises a serious objection to this wage policy. For, though it would speed up the transference of labour and so reduce unemployment in the long run, it might possibly cause more unemployment in the short run than the policy adopted at present, as there would be no wage reductions in the trades suffering from reduced demands. We should have a situation in which there existed at one and the same time unfilled vacancies in one group of trades, and, in another, unemployed workers unable for the time being to fill the vacancies that were available.

(3) The third alternative, which avoids this objection, is to reproduce, as a deliberate policy, wage adjustments of the same kind as would be made in a competitive labour market. A change in the relative labour demands in different occupations would involve, as at present, a change in the relative wage-levels (in order to ease the situation in the trades suffering from reduced demands); but this discrepancy would be deliberately eliminated in stages, according to the rate

at which workers could be trained and transferred to the jobs available in the industries with increased demands. The disparity in wage rates would be eliminated, as under competitive conditions, by steadily reducing rates in the prosperous trades and raising them in those where the demand had diminished, until equality of efficiency wages was restored. This implies, of course, that the existence of unemployment in depressed, overcrowded occupations (or even the existence of "unfairly" low wages in these occupations) would have to be admitted as a sound argument for wage cuts in the prosperous, expanding occupations.

What are the prospects for the acceptance of such a wage policy? It must be admitted that as long as wages continue to be settled by a process of collective bargaining between the parties within each industry, it is not in the least likely to be adopted. In fact it cannot be adopted. For the policy we are considering requires that the wage-levels in different industries shall be carefully co-ordinated so as to facilitate the continuous redistribution of labour with the minimum possible amount of unemployment. Such a co-ordination of wage-levels is impossible of attainment in a régime in which each industry is left, as is the case at present, to solve its wage problems for itself. The adoption of this policy would of necessity involve the transfer of the function of wage settlement from the trade unions and employers' associations alone to some nationally constituted wage-fixing authority.

In countries like Australia and New Zealand, which have become accustomed to the regulation of wages by statutory Arbitration Courts, co-ordination of the wage-levels in different industries could be achieved

without any violent break from traditional methods. But in Great Britain we can be quite certain, in view of the uncompromising attitude of both employers and employed to anything in the nature of compulsory arbitration, that there would be the strongest opposition. It would take many years of educational effort to drive home to the parties in industry the fact that the wage-level in a particular trade is *not* a matter which solely concerns the people in that trade, but, on the contrary, affects the wages that can be paid, and the volume of unemployment, in other trades.

Nevertheless I feel convinced that ultimately the need for co-ordinating the wage settlements over the whole field of industry must secure general recognition; for, as Professor Clay declares in making a similar plea, the alternative is a breakdown of the machinery of collective bargaining under the pressure of a growing problem of unemployment.¹

¹ "The Public Regulation of Wages in Great Britain", *Economic Journal*, September, 1929, p. 343.

CHAPTER III

WAGE POLICY AND THE TRADE CYCLE—THE PERIOD OF BOOM

IN this and the following chapter I propose to seek answers to the questions: (i) what influence, if any, the movements of wage rates have on the course of the trade cycle, and (ii) what possibility there is of eliminating or reducing cyclical fluctuations by means of an appropriate wage policy. In the absence of any generally accepted theory of the trade cycle, these topics must necessarily be highly controversial. There is, for instance, an irreconcilable clash of opinion between those who are convinced that the reduction of wage rates in a general slump facilitates recovery, and those who are equally certain that any such policy can only intensify and prolong the depression. I shall therefore examine the implications of the principal trade cycle theories so far as wage policy is concerned, and make a reasoned selection from them.

The outstanding feature of the behaviour of wage rates in the course of the trade cycle is their comparative lack of plasticity. It is a well-known fact that there is a so-called "time-lag" between the movements of prices and profits on the one hand and wages on the other. (To be strictly accurate, prices should be omitted from this generalisation since it is possible, in a period of rapid technical progress, for a profit inflation to occur under conditions of price stability,

as, broadly speaking, happened in the last American boom.) When trade is recovering from the nadir of a depression and while unemployed labour is available in practically every industry, the expanding demand for labour can be met without any tendency for wage rates to rise (average earnings will of course tend to increase owing to greater regularity of employment); but as the boom develops, a scarcity of labour appears in the most active trades and competitive pressure tends to raise wages, while in industries where there is still unemployment trade union pressure may force up wages. Occasionally wages succeed in overtaking prices before the height of the boom is reached; more frequently they lag behind prices throughout the upward phase of the cycle and then continue to rise after prices have started to fall.¹ During the slump the reverse process takes place, owing to the natural resistance of organised labour to wage reductions.

Most economists, holding widely differing views as to the causation of the trade cycle, have agreed that the inflexibility of wage rates is of some significance in the cycle, either as the main causal factor or as an accentuating influence. Some writers are most impressed with the need for greater plasticity of wages during the boom phase; this is particularly true of those holding some form of the "underconsumption" theory of the trade cycle. Others have little to say on wage policy as a factor during the boom, but urge a greater flexibility of wage rates in the slump as a means of accelerating recovery. This is the attitude generally found amongst those who subscribe to a monetary explanation of the cycle. A third group advocates greater plasticity of wage rates throughout

¹ Cf. Wesley C. Mitchell, *Business Cycles* (1913), p. 477.

all the phases of the cycle. This is the line taken by those who regard the trade cycle as a mainly psychological phenomenon due to the oscillation of the business community between states of excessive optimism and pessimism.

1. WAGES AND PURCHASING POWER

On what grounds can it be held that the inflexibility of wage rates during a boom contributes to the maladjustments which provoke the crisis and subsequent collapse? The most popular doctrine is that if wages are not steadily increased so as to keep pace with production, there will be insufficient purchasing power to take up, at remunerative prices, all the goods that are being produced. This is the essence of the "philosophy of high wages" which became so popular in America after the war, and in which many publicists were prepared to find the main explanation of American prosperity. Trade union leaders and many industrialists advocated steadily rising wages, not primarily because of their stimulating effects on the efficiency of workers and employers, but because they regarded it as a common-sense proposition that the buying power of labour must be increased to provide extended markets for the increasing volume of production. "Belief in the economy of high wages has become prevalent among the able business executives, much as belief in increasing productivity has become prevalent among the able trade-union leaders. To find a market for the wares turned out by mass production and urged on consumers by national advertising, it is patently necessary to have a corresponding purchasing power in the hands of consumers. Since studies

of the national income have demonstrated that wages constitute by far the largest stream of personal income, it follows that wages per man—or rather, wages per family—must be increased as production is expanded.”¹

Given certain premises, this argument is seen to be little more than a truism. If we start from the assumption that entrepreneurs have already taken decisions which will result in an increased output of goods bought solely or mainly by the wage-earning classes, it necessarily follows that, if no overproduction is to afflict the industries in question, there must be a correspondingly increased amount of real purchasing power placed in the hands of wage-earners. If $\frac{1}{2}$ th of the cost of aggregate output consists of the cost of goods bought exclusively by wage-earners, and if less than $\frac{1}{2}$ th of the total income consists of wages, entrepreneurs in the “wage goods” industries will inevitably fail to secure normal profits. The consequent depression in those industries can be attributed either to too low a general level of wages or to the over-production of “wage goods”, according to one’s point of view.

But in exactly the same way, if $\frac{1}{2}$ th part of the cost of aggregate output consists of “non-wage goods”, and less than $\frac{1}{2}$ th of the total income is distributed to “non-wage-earners”, the industries catering for the profit-making classes will find themselves in difficulties; and in this case it can equally well be claimed that the trouble is due to too low a level of profits. In general terms, if an expansion of output is not to be wasted or sold at a loss, additional incomes must be put at the disposal of people who are willing to

¹ *Recent Economic Changes*, p. 866 (in the section written by Wesley Mitchell).

buy the goods which compose the additional output, wages, profits and other types of income being in essentially the same position so far as the provision of purchasing power is concerned.

But it is very widely believed that there is some special virtue in purchasing power distributed in the form of wages; in fact, in the cruder statements of the argument, total purchasing power and wages are interchangeable terms. On this view, failure to raise real wages during a period of increasing productivity must create a deficiency of purchasing power and precipitate a crisis. Now as all the costs (including profits) incurred in the process of production become, directly or indirectly, spendable incomes for somebody, there must necessarily be a sufficient amount of purchasing power continually being put into circulation to make possible the purchase, at prices covering total costs, of the whole of the current output. Whether the recipients of this purchasing power choose to spend it at the usual rate is, of course, quite a different matter. But it is quite fallacious to identify total purchasing power with wages and to contend, on that basis, that a crash must come if wages do not keep pace with expanding productivity.

There is, however, some reason for thinking that as a boom develops a situation may arise in which aggregate wages are discovered to have increased less rapidly than the output of "wage goods", with resultant losses in the industries catering for working-class consumption. The argument supporting this conclusion is briefly as follows. The relative proportions of income spent on necessities, comforts and luxuries are determined mainly by the size of the available income. Every study of family budgets, from those of Le Play

and Engel onwards,¹ has revealed the fact that in small-income groups the biggest part of the available income is spent on necessities, only a very small percentage being allocated to comforts and luxuries. In large-income groups, though the absolute expenditure on necessities is greater, the proportion of income spent in that direction is comparatively small, the hulk of the income being allocated to comforts and luxuries. In any case, one would expect these results on *a priori* grounds. Hence, any large-scale redistribution of income as between rich and poor is bound to affect in no small degree the relative demands for these three classes of consumers' goods.

During a trade boom very considerable modifications of the distribution of incomes take place.² In particular, a larger proportion of an increasing income becomes available as profits, and a smaller proportion (though a larger total) is distributed as wages. And as aggregate wages go, for the most part, to the smaller-income groups and aggregate profits to the larger-income groups, the change in the ratio between aggregate wages and aggregate profits in a boom period must result in a smaller proportion of the national income being spent on necessities and simple comforts, and a greater proportion on luxury goods and services.

If entrepreneurs realise during a boom that they can reasonably expect only a moderate increase in the demand for necessities and simple comforts, and that the greatest expansion of demand will be in the category of luxuries, they will allocate resources accordingly and no maladjustment need arise. But it is unlikely

¹ Cf. R. G. D. Allen and A. L. Bowley, *Family Expenditure*, chapter i.

² For statistical illustrations see G. Cassel, *Theory of Social Economy* (translated by J. McCabe), pp. 583-90, and C. Clark, *National Income and Outlay*, p. 94.

that they *will* make these careful forecasts of the relative rates of justifiable expansion in the various industries. On the contrary, they are likely to increase the output of "wage goods" at a greater rate than the demand will ultimately warrant. There are two reasons why this is likely to happen.

(1) In the first place, in the early stages of the boom entrepreneurs in the "wage goods" industries will share in the general prosperity, despite the fact that a diminished proportion of the aggregate income is being spent on their products; because aggregate wages will be increasing, owing to the utilisation of additional credits to pay out wages to an increasing number of workers. In the prevailing mood of optimism entrepreneurs in these industries will tend to anticipate a continuance of this early rate of increase in demand and will undertake additional investment in order to cater for it. Whereas, in actual fact, the rate of increase in the demand for "wage goods" must slow down as the system approaches a position of full employment. In short, the errors of over-optimism to which many investigators of the trade cycle attach significance, are most likely to be made in the industries catering for working-class consumption, as entrepreneurs are likely to be blind to the fact that, owing to a combination of falling real wage rates and a declining rate of increase in employment, the demand for wage goods must at some point cease to increase and ultimately begin to fall.

(2) In the second place, the commodities consumed by the wage-earning classes are for the most part produced in large quantities and standardised, and accordingly in their production large amounts of capital are used per £'s worth of finished product. The

luxury commodities purchased by the well-to-do classes, on the other hand, consist to a much larger extent of personal services and of hand-made and artistic goods produced to meet the personal requirements of individual customers, and therefore require in their production comparatively small amounts of capital equipment. Hence, of the greatly increased amount of capital that becomes available for investment during a boom, it is likely that the bulk will be invested in the "wage goods" industries, since the luxury trades offer comparatively small outlets for investment. Investors seeking investments in fields which offer the prospect of extensive markets are likely to aid and abet entrepreneurs in the "wage goods" industries by supplying them with all the capital which their wrong forecasts lead them to require.

If, for these reasons, the supply of productive resources is *not* allocated so as to correspond exactly to the different rates of increase in the demands for necessities, comforts and luxuries, a point will be reached sooner or later at which, though the luxury-producing trades are still "underproducing" and making abnormal profits, the necessary-producing trades discover that they have "overproduced" and secure, in consequence, less than normal profits.

But it seems very doubtful whether it is this tendency to overproduce "wage goods" which is primarily responsible for the breakdown of the boom. All the available evidence indicates that, at the beginning of a slump, the consumption industries as a whole remain comparatively prosperous for some time after the capital-producing industries have begun to show a decline in activity. The overproduction of "wage goods" would appear, therefore, to be one of the

secondary maladjustments of a boom period, but not the major cause of the development of a crisis.

If, by increasing the flexibility of wages, the proportion of aggregate income distributed as wages could be augmented (to what extent this is possible is examined later in the chapter¹), the tendency to over-produce "wage goods" might be mitigated. But it cannot be claimed that all possibility of overproduction would thus be eliminated; mistaken forecasts might still be made through entrepreneurs failing to appreciate the fact that, as a position of full employment is approached, the rate of expansion of consumption goods must tend to fall.

In a progressive community, especially if its population is stationary or declining, there is probably a secular as well as a cyclical tendency, towards the overproduction of necessities and simple comforts, since the demand for these goods increases much more slowly than the average real income per head. It certainly appears to be paradoxically true that in most countries profits can be made much more easily from the production of things that people can quite well manage without, than from the production of things that they *must* have.

2. THE UNDERCONSUMPTION THEORY

In the "oversaving" or "underconsumption" theory of the trade cycle, the "lag" of wages behind prices and profits during a boom plays a prominent part. According to this theory, of which Mr. J. A. Hobson is the ablest exponent in this country, booms end in crises because excessive saving brings

¹ See below, pp. 116 *et seq.*

into existence a greater supply of capital equipment than the rate of spending on consumption warrants. This excessive equipment results in a larger output of consumption goods than can be sold at remunerative prices, and the boom accordingly collapses. Excessive "saving" in this theory does not, of course, mean too much saving in relation to current real investment (*i.e.* production of additional real capital). The distinction between savings and investment, with which we have become so familiar in recent years, plays no part in Mr. Hobson's theory, since he assumes that savings are all utilised to acquire additional capital goods. By "oversaving" he means an excessive production of capital goods relatively to the amount spent on consumption goods.

The tendency to oversaving he attributes fundamentally to the unequal distribution of incomes; too large a proportion of the aggregate income normally finds its way into the pockets of the profit-making and saving class, and too small a proportion is distributed to wage-earners, the spending class. During a boom this maldistribution of income is accentuated, owing to the lag of wages behind prices and profits. The increasing proportion of income distributed as profits makes possible a higher rate of saving, and the diminishing proportion distributed as wages imposes a lower rate of spending, with the result that production and consumption ultimately get out of gear.

Mr. Hobson argues that the elimination of the "wage lag" would go a long way to correct cyclical fluctuations, in two ways. Firstly, by reducing the rate of profit and increasing rates of wages, it would slow down savings and stimulate consumption. "In other words, it would make for an adjustment between the

rate of reviving production and of reviving consumption which might maintain an equilibrium between the two processes at a high level for an indefinite time, avoiding the slump otherwise held to be inevitable. The expansion of production and employment would, as before, continue until all the factors of production were in full use, but this process would go more slowly because a smaller proportion of the income would be available for saving, i.e. for making capital goods."¹

Secondly, "the removal of the wage-lag would also act in another way on credit and prices. By curbing the high profits which the wage-lag makes possible, it would reduce the incentive of business men to borrow and of bankers to lend. So less credit would be manufactured, prices would not rise as much or as fast, and the whole process of reviving trade would take place more slowly. This slower recovery would be the price paid for the greater security of the recovered trade."²

At the same time, Mr. Hobson emphasises that the adjustment of wages during the boom so as to keep pace with profits is not, in itself, enough to eradicate the tendency towards oversaving. In addition, therefore, he urges that the tax system must be used so as to secure a much more equal distribution of income and remove the fundamental cause of the "oversaving" propensity.

The underconsumption explanation of the trade cycle has met with a very mixed reception. In many sections of the organised labour movement it has acquired an immense prestige, mainly because it attributes slumps to the inequalities of the economic system. Some professional economists, like Mr. G. D. H.

¹ J. A. Hobson, *Economics of Unemployment*, p. 70.

² *Ibid.*, pp. 70, 71.

Cole, also find in it a reasonable explanation of the phenomenon of the trade cycle. Mr. J. M. Keynes has made sympathetic references to Hohson's work, both in his *Treatise on Money* and more recently in his *General Theory of Employment, Interest and Money*, without, however, accepting his theory *in toto*. The majority of economists, however, remain unconvinced that underconsumption or oversaving is responsible for the occurrence of trade slumps.

The criticism usually levelled against the theory is that if it were sound we should expect the rate of interest to fall to zero when the boom terminates, whereas in actual fact it always remains positive even in the lowest depths of a depression, and at the time of the crisis initiating the slump it is markedly higher than usual.¹ This criticism is based on the assumption that if, as the underconsumption theorists contend, we were so overstocked with capital goods at the time of the crisis that entrepreneurs as a whole were unable to use them profitably, the demand for investible capital would disappear, and consequently the rate of interest would drop to zero.

But does not such a criticism place too much reliance on the effectiveness of the rate of interest as an equilibrating agency? The borrowers of capital fall into two main groups: (a) those borrowing for "productive" purposes and (b) distress borrowers who are in need of funds to finance consumption or to finance losses. In normal times the bulk of the borrowing is done by the first class. But at a time of widespread business losses there is much borrowing of the second type. Even if a firm in difficulties does not borrow

¹ Cf. L. Robbins, "Consumption and the Trade Cycle", in *Economica*, November, 1932, p. 422.

in the ordinary sense of the term, it may draw on its reserve funds by, say, selling existing securities, and so take up part of the community's gross savings. But clearly no real investment results from this purchase of old securities by the original savers. It is, in fact, conceivable that the whole of the current gross savings might be invested in securities bringing in a positive rate of interest, yet no addition to the community's stock of real capital would result if all those securities were being sold to finance losses. In short, a positive rate of interest would still exist owing to the ability of savers to buy existing interest-bearing securities, even though the demand for capital for productive purposes had completely disappeared. With the capital market organised as it is, only an infinitely large supply of savings could reduce the rate of interest to zero.

But, although the existence of a positive rate of interest during a depression is not irreconcilable with the underconsumption theory, it is not easy to fit the *rise* in interest rates which occurs at the height of the boom into such a theory. At the peak of a boom when a crisis is imminent, the rate of saving should be at its maximum and the demand for capital should be declining according to this theory. This is surely a combination of circumstances which, according to equilibrium theory, should result in a *falling* rate of interest.

However, it seems possible to suggest an explanation which will make an "oversaving" theory compatible with the rise in interest rates at the height of the boom. Even if the demand for capital for productive purposes has started to decline and a recession has already appeared in the capital-producing industries, it is still possible that rates of interest may continue to rise, owing to an abnormal demand for loans for

speculative purposes, more than offsetting the decline in the industrial demand for loans. Owing to the pervading spirit of optimism, the speculative section of the public appears to be slow to recognise the signs that a boom is approaching its end. In the United States the speculative boom of 1929 continued to develop until the autumn, although the recession had definitely set in, so far as the heavy industries were concerned, six months previously. In short, the underconsumptionists can claim, with some justification, that if all economic activities were based on a reasoned calculation of expectations, rates of interest *would* decline at the top of the boom; but that, in actual fact, the behaviour of speculators is so irrational, that they horrow in abnormally large amounts and force up interest rates at a time when the marginal productivity of capital is nevertheless declining.

The most damaging criticism of the underconsumption theory is that it is inconsistent with the observed fact that the consumption industries continue to prosper for some time after the depression has appeared in the capital-producing industries. The crisis is not precipitated by the sudden appearance of a glut of consumable goods, as one would expect from the underconsumption analysis. It might be argued that the entrepreneurs in the consumption industries anticipate, at the top of the boom, a cessation of the increase in the demand for their products, and accordingly greatly curtail their demand for capital equipment; hence the onset of depression in the heavy industries while the consumption industries are still doing well. But clearly, if entrepreneurs are as far-sighted as this implies, they will have avoided the overproduction of capital goods and the subsequent glut of consumable goods, both of

which are essential elements in the underconsumption theory. The continued profitability of the consumption industries after the slump has appeared in the capital industries is one of the crucial points which any adequate trade cycle theory must be able to explain; and it is here that the underconsumption theory most completely fails.¹

3. THE PSYCHOLOGICAL THEORY

In the opinion of those economists for whom the trade cycle is wholly or mainly a psychological phenomenon, the "wage-lag" is an important contributory factor through its influence on the behaviour of the business community. The failure of wages and other items of cost to rise as rapidly as prices (or alternatively

¹ In reply to a similar criticism by Mr. E. F. M. Durbin, Mr. Hobson made the following comments: "My view that a depression is due to an excessive rate of saving does not hinge upon the contention that the first phase of a depression is a collapse of demand for consumption goods. The collapse of demand admittedly shows itself first in a reduced demand for plant and materials in the fundamental production industries, into which investment capital has been flowing at a pace proved now to be excessive. Unemployment in these industries ensues, and the new savings designed for investment thus remain uninvested. When this unemployment has had its necessary effect in reducing the general purchasing power of the workers the demand for consumption goods will be reduced, and the depression will proceed along its usual course." See "Underconsumption—An Exposition and a Reply", by J. A. Hobson; "A Reply to Mr. Hobson", by E. F. M. Durbin; and "A Rejoinder", by J. A. Hobson—all in *Economica*, November, 1933.

Here Mr. Hobson appears to have developed his position considerably since his earlier writings and to have adopted Mr. Keynes' viewpoint. He was not originally concerned with any possible failure to convert savings into real investment, but assumed that "oversaving" automatically caused an overproduction of capital goods, and in turn a glut of consumable goods. He now appears to be arguing that it is the failure to produce capital goods equal in cost to the current savings which causes savings to be wasted, thus leading in due course to a curtailed demand for consumption goods. Cf. J. M. Keynes' criticism of Mr. Hobson in his *Treatise on Money*, vol. 1. pp. 178, 179.

the failure of prices to fall as rapidly as costs) during a boom, presents entrepreneurs with an expanding margin of profit. The ease with which increasing profits can be obtained induces a mood of optimism under the influence of which entrepreneurs and investors commit serious errors in forecasting. "When we have increasing prices, increased profit largely arises because wages lag behind in the race for monetary change of expression, and business psychology bases itself upon this enhanced profit, tends to assume there will be no commensurate increase in wages, and in its optimism and separatist complacency has too heavy a forward programme, thus increasing the height of the boom."¹ When these errors of undue optimism are discovered through the appearance of overproduction, there is a break in confidence and a slump is initiated.

If the receipt of abnormal profits does impair the judgment of entrepreneurs and generate irrational forecasts, an effective mode of counteracting cyclical fluctuations, as Mr. Lavington has pointed out,² might be to prevent the abnormal profits from materialising, either by restricting the rise in prices (by means of credit control) or by accelerating the rise in costs (by means of a prompter adjustment of wage and interest rates to variations in the profitability of business).

But it must be conceded that even if the business community could be kept in a coolly calculating frame of mind throughout a boom, many mistakes in forecasting would still be made, owing to the impossibility of measuring at all accurately the many influences which are likely in the future to affect the business

¹ Sir Josiah Stamp, *Current Problems in Finance and Government*, p. 154.

² *The Trade Cycle*, pp. 107, 108.

situation. "Our knowledge of the factors which will govern the yield of an investment some years hence is usually very slight and often negligible. If we speak frankly, we have to admit that our basis of knowledge for estimating the yield ten years hence of a railway, a copper mine, a textile factory, the goodwill of a patent medicine, an Atlantic liner, a building in the City of London amounts to little and sometimes to nothing; or even five years hence."¹

The main difference between the forecasts made by a level-headed business community and those made by a highly optimistic one is that the former take more account of what small indication of future prospects there is. But this surely is a very flimsy and inadequate basis on which to explain the rhythmic oscillations of industry and trade.

It may be suggested that whereas the errors made by a level-headed business world would cancel each other out—some entrepreneurs finding that they had "overproduced" and others that they had "underproduced"—those made by an optimistic community would be practically all in the same direction, viz. overproduction. But, as has been pointed out already, since purchasing power sufficient to buy the whole of the current output is necessarily distributed in the process of production, there cannot be any *general* overproduction, provided, of course, that the whole of that purchasing power is utilised at an undiminished rate of circulation to take up the current output. The commonest error of optimism made by entrepreneurs during a boom is the failure to realise that the boom will not last for ever, but must give way to a slump.

¹ J. M. Keynes, *The General Theory of Employment, Interest and Money*, p. 140.

But a widespread failure to anticipate a slump obviously cannot, of itself, precipitate a slump. On the contrary, if the business community decided that a general recession was highly probable in, say, two years' time, it would certainly behave in a way which would make a slump inevitable.

So far as the psychological factor is concerned, therefore, the utmost that can be claimed for a policy of raising wages at the expense of profits is that, in so far as it induced a more sober frame of mind among entrepreneurs and investors, it would prevent the launching of those wild-cat schemes which owed their conception to nothing more than exuberant spirits; but, as errors of optimism cannot be held responsible for the collapse of booms, it would leave the main features of the boom and crisis quite unmodified.

And even this modest claim is based on the dubious hypothesis that an absence of abnormal profits induces more rational behaviour on the part of entrepreneurs and investors. J. S. Mill claimed, on the contrary, that overtrading and rash speculation are most likely to arise when the ordinary channels of investment are yielding diminishing profits. In discussing the factors which counteract the "tendency of profits to fall as society advances" he wrote as follows: "By the time a few years have passed over without a crisis, so much additional capital has been accumulated, that it is no longer possible to invest it at the accustomed profit; all public securities rise to a high price, the rate of interest on the best mercantile security falls very low, and the complaint is general among persons in business that no money is to be made. Does not this demonstrate how speedily profit would be at the minimum, and the stationary condition of capital would be attained, if

these accumulations went on without any counter-acting principle? But the diminished scale of all safe gains inclines persons to give a ready ear to any projects which hold out, though not the risk of loss, the hope of a higher rate of profit; and speculations ensue, which, with the subsequent revulsions, destroy, or transfer to foreigners, a considerable amount of capital, produce a temporary rise of interest and profit, make room for fresh accumulations, and the same round is recommenced."¹

4. MR. HAWTREY'S THEORY OF THE TRADE CYCLE

Of the monetary explanations of the trade cycle, I propose to examine two, those generally associated with the names of Mr. R. G. Hawtreys and Professor Hayek, in order to ascertain their implications in the matter of wage policy.

Mr. Hawtreys developed the essentials of his trade cycle theory before the war (in his *Good and Bad Trade*, published in 1913) and is still ably defending it against all new-comers in this field.² In essence he attributes the alternation of booms and slumps to the instability of credit. Suppose that, at the lowest point of a depression, traders decide to increase the rate at which they purchase goods from manufacturers in order, say, to replenish stocks which have sunk to a low level during the depression. If, as is in fact their practice, they finance these additional purchases by means of bank loans, aggregate money income ("consumers'

¹ *Principles of Political Economy* (edited W. J. Ashley), p. 734.

² The principal works in which Mr. Hawtreys discusses trade cycle theory include *Currency and Credit*, *Trade and Credit*, *The Art of Central Banking*, *Trade Depression and the Way Out* and *Capital and Employment*.

income" in Mr. Hawtrey's terminology) will immediately increase. Unless income receivers enlarge their holdings of money by the amount of additional income (which is obviously highly improbable), the increase in aggregate income will lead in turn to an increase in aggregate expenditure ("consumers' outlay"). In consequence, retailers will experience an expansion of demand for their wares and will pass back bigger orders to middlemen, manufacturers, etc. Producers will enlarge their working capital in order to cater for this increased demand, and dealers will tend to hold larger stocks in view of the brisker trade; the result will be further borrowing for these purposes. These additional credits in turn will generate further consumers' income, further consumers' outlay, further loans, and so on in an ever-widening circle. At a later stage, the vicious circle of expanding credit, expanding income and expanding expenditure will be accentuated by the rise in the price-level, which will necessitate borrowing on a still larger scale in order to finance the processes of production.

Credit is thus inherently unstable. Once an expansion of credit is started, we get this rolling-snowball effect. But the convertibility of credit into currency imposes a limit on the power of the banking system to expand credit. The additional bank deposits to which the expansion of credit gives rise all constitute a liability to pay out legal tender money on demand or at short notice. The banks are therefore compelled to keep some reserve of cash against this liability. In practice, they aim at maintaining a certain minimum proportion between cash and deposits which their experience has taught them is safe. This minimum is not rigidly fixed; in fact, the elasticity of the minimum

helps to accentuate the boom. During the upward phase of the cycle, when good sound borrowers are plentiful, and unbounded optimism pervades the business world, the banks are likely to lower their reserve requirements. But ultimately, as the credit expansion continues, the deposit liabilities of the banks will increase to an amount which brings the reserve ratio down to the lowest level consistent with safety.

Moreover, the rising price-level normally accompanying a credit expansion will lead to an increase in the amount of money which the general public find it convenient to hold (the "unspent margin"). There is thus likely to be some net withdrawal of currency from the banking system to meet the growing monetary requirements of the public. In addition, under gold standard conditions, there may be an external drain on the reserves of the banking system if the expansion of credit and the consequent rise in the price-level cause the exchanges to move unfavourably. The process of credit creation thus tends, at one and the same time, to enlarge the deposit liabilities of the banks and to reduce the currency reserves available to meet these liabilities. At some stage, therefore, the banks are compelled to call a halt; this they can achieve by raising short-term interest rates.

Higher interest rates will curtail the demand for loans, especially, according to Mr. Hawtrey, on the part of dealers who borrow to finance the stocks they hold. Dealers he regards as the most sensitive agents in the mechanism of credit; their reaction to higher interest charges will be a reduction in their stocks, which can be effected by slowing down the orders they give to producers. Thus the payments made by dealers to producers will decline, consumers' income will

shrink, so also will *consumers'* outlay, and in consequence the price-level will fall. Thus is initiated a general depression of trade.

If this purely monetary explanation of the cycle be accepted, is there any conceivable wage policy which could make much difference to the course taken by the cycle during the boom? Mr. Hawtrey has comparatively little to say, in his extensive writings on monetary problems, about wage policy; he is mainly interested in the possibility of eliminating, or at least alleviating, the effects of the trade cycle by means of an appropriate monetary policy. But he has suggested that wage policy might offer an alternative line of attack on this problem. "In a sense", he has written, "all the mischief of trade fluctuations arises from the tendency of changes in wages to lag behind changes in the value of money. . . . If the working classes would accept an early reduction of wages when a period of bad trade begins and if the employers would give an early increase of wages when a period of good trade begins, not only would the harmful consequences of a trade fluctuation be avoided, but the fluctuation itself might even be prevented. For if an increase or decrease of credit money promptly brought with it a proportionate increase or decrease in the demands for cash, the banks would no longer either drift into a state of inflation or be led to carry the corresponding process of contraction unnecessarily far."¹

Whatever may be the merits of prompt wage reductions during a slump (we leave this question to the following chapter) it is difficult, on the basis of Mr. Hawtrey's analysis, to see how prompt upward adjustments of wages could materially alter the course of

¹ *Good and Bad Trade*, pp. 255, 266

the boom and prevent the crisis. The initial creation of additional credits will give rise to additional consumers' income whether wages are immediately raised or not; and whether the bulk of the additional income is distributed as wages or as profits, there will still be a consequent increase in consumers' outlay, which in turn will lead to further borrowing by producers and dealers. Again, the rise in the price-level normally accompanying a credit expansion cannot be prevented by distributing a larger proportion of the additional income to wage-earners. Prompt wage increases during a boom, therefore, appear in no way likely to break the vicious circle of expansion; neither would they prevent the internal drain on the cash reserves of the banking system, or the ultimate need for higher interest rates when the credit expansion had proceeded as far as could be permitted with safety.

So far as the course of the trade cycle is concerned, the only important effect which the elimination of the wage-lag would have, would be to shorten the period of boom. The rate at which borrowing for the provision of working capital increased would be greater if wages rose rapidly; moreover, since the expenditure of wage-earners is financed with currency, as distinct from bank deposits, in a greater degree than the expenditure of the well-to-do, the more rapidly wages rise the greater is the rate of withdrawal of currency from the banks' reserves. For both these reasons, the elimination of the wage-lag would hasten the stage at which cash reserves have fallen to the lowest level consistent with banking stability.

Can the phenomenon of the trade cycle be sufficiently explained by the instability of the credit system? Or are the alternate expansions and contractions

of credit merely influences accentuating other "real" causes of the cycle? And in particular, is it the contraction of credit which causes consumers' income and outlay to decline, or is the credit contraction merely the consequence of a prior contraction of aggregate expenditure? These are still amongst the unsolved problems of trade cycle theory. That an expansion of credit is calculated to generate boom conditions, and a contraction the reverse, cannot be denied; but whether, in actual practice, fluctuations in the volume of credit are the prime movers is a matter of legitimate doubt. If one accepts this purely monetary explanation, one must be prepared to demonstrate that in the course of all past cyclical fluctuations the turning-point from boom to slump has been accompanied invariably not only by a rise in interest rates, but also by a net reduction of borrowings from the banks. For, as Mr. Hawtrey has pointed out, "when traders seek to diminish their stocks of commodities, there will be no flagging in the activity of trade unless they take steps to diminish their indebtedness to the banks".¹ Mr. Hawtrey has claimed that experience proves that "the transition from activity to depression was marked (under pre-war gold standard conditions) by a restriction of credit occasioned by a shortage of cash reserves in the banks".²

But the facts of the post-war cycles certainly do not give unqualified support to his views. Mr. Hawtrey himself has pointed out that "in 1920 when bank rate in London was raised to 7 per cent, and the most intense deflation was set on foot, the total amount of bank deposits in England actually increased".³ But surely if bank balances actually increased there could

¹ *Trade and Credit*, p. 93.

² *Ibid.*, p. 94.

³ *Ibid.*, p. 101.

have been no net reduction in the amount of credit money created by the banks. Again, during the American slump of 1929, general business conditions were becoming depressed before aggregate loans and discounts began to decline.¹

On the whole, Professor J. M. Clark's estimate of the part played by credit restriction seems reasonable: "While the contraction of credit may to some extent be the moving cause of the contraction in expenditures, it seems more likely to be a result, taking up the slack as expenditures shrink. This is partly borne out by the fact that bank credit frequently shows no absolute contraction in a business recession."²

5. THE "ADDITIONAL CREDIT" THEORY

According to the "additional credit" theory of the trade cycle, of which Professor Hayek³ is the leading exponent in this country, the rise of wage rates during the boom contributes to the collapse not because it lags behind the rise of prices, but because it helps to render unprofitable the production of capital goods. The essential stages in this argument are as follows.

We assume, to begin with, a state of equilibrium, in which, *inter alia*, there are no unused resources. Suppose, then, that the banks begin to issue additional credits to producers. Unless this credit expansion offsets a tendency to build up larger money hoards, it will increase the supply of free capital available for investment, and so make the actual rate of interest lower than the "equilibrium rate" which would have

¹ J. M. Clark, *Strategic Factors in Business Cycles*, p. 69.

² *Ibid.*, p. 83.

³ See especially his *Prices and Production and Monetary Theory and the Trade Cycle*.

prevailed if only voluntarily saved free capital had been available. The lower rate of interest induces entrepreneurs to resort to more "roundabout", more "capitalistic", methods of production, which naturally creates an increased demand for capital goods and leads to an expansion of the industries producing those goods. For the time being, the production of capital goods has become more profitable than the production of consumption goods, because, owing to the additional credits, an increased *proportion* of the total money expenditure in a given period of time is now directed to the former category. Consequently, resources are attracted away from the production of goods for current consumption to the "higher" or earlier stages in the productive process.

But the prosperity of the capital-producing industries proves to be short-lived. The additional credits, used in the first place to finance the production of capital goods, will be paid away as incomes to the various agents employed in their production, and these incomes will be allocated in the usual proportions between spending and saving; there is certainly no reason for thinking that the whole of the additional income will be saved. The result is that, unless the banks oblige by issuing further credits at an increasing rate (and they cannot do this indefinitely), the proportion of aggregate money expenditure directed to the purchase of consumption goods will revert to the level prevailing before the credit expansion began, and the consumption industries will now become more profitable than the capital-producing industries. Consequently, the consumption industries, in order to obtain additional supplies of resources with which to meet the growing demand, will bid up factor prices, including

rates of wages, to levels which the less profitable capital-producing industries cannot afford to pay. Accordingly, those resources which are mobile or "non-specific" will tend to leave the "higher" stages of production in order to participate in the production of consumption goods.

Moreover, the proportion between free capital made available for investment in a given period and aggregate income will decline, owing to the cessation or slowing down of credit creation, and the rate of interest will rise in consequence. Entrepreneurs in the capital-producing industries will thus find themselves compelled to bear both higher wage costs and higher interest charges than they had anticipated when they planned their production programmes earlier in the boom; the production of capital goods will become unprofitable and output will decline in this group of industries. The higher rate of interest will thus have compelled entrepreneurs to return to less "round-about" processes, and the "structure of production" will become shorter.

In short, the temporary lowering of interest rates during the period of credit expansion encourages the adoption of longer and more capitalistic methods of production; but these have to be abandoned when the subsequent rise in interest rates makes them unprofitable. The crisis really arises from the necessity of scrapping these unprofitable methods and returning to less capitalistic processes. And, unfortunately, the reversion to shorter processes is necessarily accompanied by some waste of resources, because the longer processes are abandoned almost as soon as they become unprofitable, while the shorter processes which have now become more profitable have to be started from

the beginning and cannot, therefore, immediately absorb all the resources released by the abandoned longer processes.¹

It would appear to follow from this theory that the crisis might be circumvented either if voluntary savings could be increased sufficiently to offset the decline in the "forced savings" arising from the process of credit creation, or alternatively, if the costs of production of capital goods could be reduced sufficiently to offset the increase in the rate of interest (since, given the prospective yields of capital goods and the rate of interest, the output of such goods must depend on their costs of production). If wages could be prevented from rising when the rate of increase of credit fell, income which would otherwise have gone to wage-earners would be diverted into the hands of profit-makers, who normally save a larger percentage of their income than wage-earners. To that extent, therefore, the keeping-down of wage rates would help to increase the volume of voluntary savings when "forced" savings began to decline. Again, if wage-earners in the industries producing capital goods accepted wage rates lower than those offered in the consumption industries, the prices of capital goods would fall relatively to those of consumption goods, and the demand for capital goods might conceivably be maintained at the level to which it rose during the period of credit expansion.

So far as the suggested rôle of wage movements is concerned, this theory of the trade cycle appears to over-simplify the behaviour of the labour market, which is nothing like as fluid and competitive as is assumed. When, at the peak of the boom, wages rise in the consumption industries, can it be safely assumed

¹ F. A. von Hayek, *Prices and Production* (1931), p. 83.

that the capital-producing industries will be compelled to bring their wage rates into line, despite the fact that the demand for their output is beginning to decline ? In view of the general practice of basing wages on what each individual industry can afford to pay, any such assumption is unrealistic. If the capital-producing industries are suffering from a falling demand, wages tend in practice to fall, however prosperous other trades happen to be. Admittedly, in the long run, there is a tendency to equalise the efficiency wage-levels in all industries ; but in the short run, with which trade cycle theory is concerned, the wages which other industries can afford to pay are a secondary consideration in the negotiation of wages for a particular group of workers.

Moreover, in the capital-producing trades, wage rates are, in practice, much more plastic than in most other trades.¹ In the British coal-mining and iron and steel industries arrangements have existed for fifty or sixty years to adjust wages to changes in the selling prices of their products or to the net proceeds of the industry (as in the case of the coal-mining industry since 1921). And in the engineering trades, before the war, it was a general practice to adjust wages according to variations in unemployment in the engineering industry.² Thus some of the principal capital-producing industries have established methods of wage adjustment which permit of wage reductions whenever they suffer a decline in demand, whether other trades are sharing this experience or not. It seems somewhat unrealistic, therefore, to argue that the higher

¹ Cf. H. G. Wood, "Stationary Wage Rates", in *Economic Journal*, 1901, p. 152.

² See R. S. Spicer, *British Engineering Wages*, p. 131.

wages forced on the capital-producing industries by the prosperity of the consumption trades help to render unprofitable their programme of production.

The "additional credit" theory, however, does not stand or fall on any assumptions as to the behaviour of wage rates in the higher stages of production. The argument that labour becomes dearer in these stages, in consequence of more intense competition from the consumption industries, appears to supply only a secondary explanation of the difficulties confronting entrepreneurs producing capital goods. Fundamentally, the trouble is attributed to the fall in the demand for capital goods caused by the spending on consumable goods of a part (in practice the bulk) of the additional income emanating from the additional credits originally issued to producers. If this explanation is sound, the prompter adjustment of wage rates to rising prices and profits, far from having a stabilising effect, would merely accentuate the crisis; by redistributing aggregate income somewhat in favour of "spenders" it would cause expenditure on consumption to increase more, and expenditure on capital goods to diminish more, than is already the case. On this theory, then, the only wage policy which can possibly contribute to the maintenance of stability, once the capital-producing trades have expanded in response to the issue of producers' credits, is one which imposes cuts on wage-earners when the rate of credit creation is about to decline, so that, by transferring income to "savers", the ratio between the expenditures on capital and consumption goods might remain undisturbed. Any such policy is of course quite impracticable, for no organised body of workers could be persuaded to accept wage cuts at a time when profits were still

expanding. The "additional credit" theory thus points unmistakably to the conclusion that it is in the sphere of monetary policy rather than of wage policy that any hope of controlling the trade cycle is to be found.

This "Austrian" theory of the cycle constitutes a considerable advance on most of the earlier theories in that it explains more satisfactorily some of the crucial features of the phenomenon: why the boom should first affect the heavy industries and why the recession should first appear in the same industries while the consumption trades are still prospering. But it is not so watertight that it compels acceptance by its logical perfection.

Professor Hayek has admitted that a decline in the rate of saving does not necessarily involve a general depression.¹ As long as the rate of saving, i.e. net saving after allowing for capital renewals, is more than enough to meet what Mr. Hawtrey calls the "widening"² capital requirements arising from the growth of population, the structure of production must continuously become more "roundabout". Hence, a falling rate of saving may merely have the effect of slowing down resort to more capitalistic processes; it need not involve a wholesale scrapping of the longer processes already adopted and a return to shorter ones. For this necessity to arise, the rate of net saving must fall below the level which, while maintaining the structure of production unchanged, just meets the additional capital requirements arising from the growth of population; if population is stationary this means, of course,

¹ "Capital and Industrial Fluctuations", in *Econometrica*, April, 1934, pp. 153 et seq.

² *Capital and Employment*, p. 35.

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¹ "Capital and Industrial Fluctuations", in *Econometrica*, April, 1934, pp. 153 *et seq.*

² *Capital and Employment*, p. 35.

that saving must become negative to impose a shortening of the structure of production.

But is there any evidence that the rate of saving does fall off to this extent at the top of the boom? Of the additional income to which the additional credits give rise, a larger proportion than usual is likely to be saved; hence, if, at the peak of a boom, the banking system suddenly ceased to make any further additions to credit, the rate of saving would still be higher than it was before the credit expansion began. A falling rate of saving might, of course, involve the abandonment of some of the uncompleted "roundabout" processes which had been started during the boom on the assumption that sufficient savings to finish them off would continue to become available in the comparatively near future at an unincreased rate of interest. But even this need not occur if the amount of capital required for this purpose declined week by week at the same rate as savings.

Professor Hayek thus fails to produce any convincing reason for believing that a shift in demand from capital goods to consumption goods must result in a general depression. He relies on the argument that the longer processes are abandoned almost as soon as this shift in demand occurs, while the shorter processes have to be started at the very beginning and cannot, therefore, immediately absorb all the resources that have been released in the "higher" stages of production. But such an argument is groundless unless it can be shown that the decline in the rate of saving at the height of the boom must necessarily be on such a scale as to impose some shortening of the structure of production. And this vital link in the argument has not been established.

Despite the differences in terminology and method of exposition, Mr. Hawtrey's and Professor Hayek's explanations clearly have a good deal in common. Both attribute the cycle primarily to the elasticity of the credit system and both attach comparatively little importance to "real" or to psychological factors. Both contend that the inability of the banking system to keep up the rate of credit expansion results in a rise in interest rates. Both argue, further, that the higher level of interest rates will damp down investment. But whereas Mr. Hawtrey draws attention primarily to the decline of investment in stocks of goods as the main factor responsible for the decline in aggregate demand, Professor Hayek contends that every form of investment will decline so as to shorten the whole structure of production ; and that before this shortening is completed there is an awkward hiatus in which many resources fail to get used at all. Finally, both forms of the monetary theory point to the conclusion that wage policy can contribute little or nothing to the prevention of crises ; once a credit expansion has got under way it makes little difference whether aggregate wages keep pace with aggregate profits or not ; the boom will still pursue its fated course.

6. MR. KEYNES' ANALYSIS OF THE TRADE CYCLE

We turn finally to those theories which seek to explain the trade cycle in terms of fluctuations in real investment, without relying exclusively on variations in the quantity of credit money to account for these fluctuations. The outstanding British representative of this school of thought is, of course, Mr. J. M. Keynes. In his most recent publication, *The General Theory of*

Employment, Interest and Money, Mr. Keynes makes no attempt to analyse systematically all the complex features of the trade cycle. His main concern is to lay the foundations of a science of economic dynamics and to forge new tools adapted to this end. By elaborating these new economic categories he has been able to present a most convincing account of the factors determining variations in the volume of employment over periods of time.

Before proceeding to a summary account of his theory and its implications in the sphere of wage policy, it is advisable to indicate the sense in which certain technical terms are used by Mr. Keynes.

(1) By *aggregate net income* is meant, approximately, the value of net output in a given period, after allowing for depreciation of capital.

(2) *Saving* is the excess of aggregate net income over expenditure on consumption goods.

(3) *Investment* is "the current addition to the value of the capital equipment which has resulted from the productive activity of the period".

Since saving is that part of net income which is not spent on consumption goods, and since investment is that part of the value of net output which does not consist of consumption goods, it necessarily follows that saving must equal investment in a given period. But Mr. Keynes has been at some pains to emphasise that it is not simply because "they are two different names for the same thing" that saving and investment are necessarily equal. "Aggregate sales" and "aggregate purchases" must necessarily be equal but it does not follow that "purchase" and "sale" are identical terms. One of the main elements in his system is, in fact, the theory that variations in investment cause

aggregate net income to vary so that the excess of income over consumption, i.e. saving, is just equal to current investment.¹

(4) The *propensity to consume* is a functional relationship between a given level of income and the expenditure on consumption out of that income. The marginal propensity to consume is assumed to fall as income increases; i.e. of a given increment of income, the proportion spent on consumption tends to diminish, and the proportion saved to increase, as the total income increases. The allocation of a community's net income might thus be as follows:

Income (£ million)	Spending (£ million)	Saving (£ million)
50	50	0
80	75	5
100	90	10
125	110	15
140	120	20

(5) The *investment multiplier* is the inverse of the ratio between a given increment of investment and the consequent increment of income which is required to yield additional savings just equal to the increment of investment; it indicates what variation in income will follow from a given variation in investment. Thus, referring to the table above, suppose that a community has an income of £100 million a week, of which £90 million consist of consumption goods and the remaining £10 million of investment goods. If investment is to be raised to the level of £15 million, aggregate income must rise to £125 million, i.e. by an amount

¹ Cf. his article "Alternative Theories of the Rate of Interest", in *Economic Journal*, June, 1937, p. 249.

equal to four times the increment of investment, since only this income will yield additional savings just equal to the additional investment. The investment multiplier, then, for this level of investment and income is 4.

The process through which income is adjusted to variations in investment is, briefly, as follows. If, when the community's income is £105 million a week, public authorities spend an additional £5 million a week on, say, road construction, thus increasing investment to £15 million, the immediate effect is to raise aggregate income to £110 million. But we have assumed in the table that the propensity to consume is such that, with this aggregate income, less than £15 million will be saved; in other words, a part of the additional income will be spent on consumption. This will, for the time being, cause a corresponding decline in the stocks of goods held by retailers and other dealers. If these firms make no attempt to replenish their stocks, but continue to give orders to producers at the same rate, then clearly disinvestment (in stocks of goods) must take place equal in amount to that part of the original increment of income that was devoted to consumption. In this case, aggregate income cannot rise above £110 million since the current output of consumption goods does not change in the least.

But if, as is much more probable (and, in fact, inevitable once the dealers' stocks are approaching exhaustion), dealers respond to the increased demand by increasing their orders to producers, the output of consumption goods will expand; additional income will then be generated, part of which will be spent and increase still further the demand for consumption goods, and so on with cumulative effect. But there is a limit to the expansion of consumption to which a

given increment of investment will give rise. If investment is maintained at £15 million a week, and the output of consumption goods is increased to, say, £125 million, giving a total income of £140 million, the entrepreneurs in the consumption industries will obviously be incurring losses, since, with that income, only £115 million will be devoted to the purchase of consumption goods. The limit is clearly reached when consumption reaches £110 million, for the saving associated with this volume of consumption is just equal to the amount of current investment.

In the same way, a decrement of investment will cause aggregate net income to shrink to an extent indicated by the multiplier, i.e. to the level at which saving has been reduced by an amount equal to the decrement of investment. It follows, then, from this general relationship between investment and aggregate income, that whether all the productive resources available to a community are fully utilised depends on whether investment is maintained at the level which will generate the income corresponding to full utilisation of resources. If, for instance, in the illustration given above, all resources are fully employed when income reaches £140 million a week, then, given the propensity to consume assumed in the table, investment must be maintained at £20 million a week to preserve full employment. Hence, to explain the trade cycle, we must be able to show why investment should alternately expand and contract, and so produce boom and slump conditions.

On what factors does the volume of real investment depend? Mr. Keynes argues that it depends on two independent variables, the marginal efficiency of capital and the rate of interest. By the *marginal*

efficiency of capital of any particular type is meant "that rate of discount which would make the present value of the series of annuities given by the returns expected from the capital-asset during its life just equal to its supply price".¹ In other words, it is the expected rate of return on the capital cost of a newly produced asset. It differs from the familiar "marginal productivity" of capital in that it relates to the *prospective* yield as distinct from the yield actually realised. Since different assets have different marginal efficiencies, the marginal efficiency of capital in general must be taken as the greatest of the marginal yields of these individual assets.

As long as it is still possible to acquire capital assets whose prospective rate of yield is greater than the current rate of interest, there is clearly an inducement to undertake additional investment; but when there are no longer any possible schemes of capital expenditure whose marginal efficiencies are as high as the rate of interest, investment will come to an end. In short, investment tends to be extended to the point at which the marginal efficiency of capital is just equal to the rate of interest.

If, therefore, the marginal efficiency of capital declines, either because all the more remunerative openings for investment are being progressively used up, or owing to some change in the state of confidence on the part of investors, the rate of interest must decline *pari passu* if the rate of investment is to be maintained without diminution. If the rate of interest does not decline, or declines insufficiently, the consequence must be a shrinkage in the volume of investment. And owing to the effect of the "multiplier"

¹ *General Theory*, p. 135.

this fall in investment must be accompanied by a shrinkage of aggregate income, by unemployment and the many other symptoms of a general depression.

Now according to the classical theory of interest, any increase in the supply of savings or decrease in the demand for them must lower the rate of interest ; so that, given the savings available for investment, any fall in what Mr. Keynes calls the " investment-demand schedule ", i.e. the schedule of the marginal efficiency of capital, should be followed by a fall in the rate of interest such that investment just takes up the available savings. Mr. Keynes, however, denies that this is a necessary consequence of a decline in the schedule of marginal efficiency ; he denies equally that an increased supply of savings will automatically lower the rate of interest. In his view, the rate of interest is not determined by the general relations between the conditions of supply of, and demand for, savings ; on the contrary, he contends that it is the rate of interest, *inter alia*, which determines what the magnitude of investment, income and savings shall be. What then determines the level of the rate of interest ?

Mr. Keynes' answer is that it depends on two variables, " liquidity-preference " and the quantity of money. Interest is clearly not the payment made for " waiting " or saving, since savers who refrain from investing their savings receive no interest. The saver has the choice of holding a store of wealth in the form of cash, in which case he forgoes all interest, or alternatively investing the funds at his disposal, in which case by parting with liquidity he can earn interest. Now people may desire to hold wealth in the form of cash for a variety of motives—for the convenience of their private or business finances, for

financing sudden emergency expenditure, for speculative and other reasons. But it seems reasonable to suppose that the higher the rate of interest the lower is the liquidity-preference of the public; and conversely a low rate of interest will be associated with a greater liquidity-preference. Or, to put the matter another way, the schedule of demand for money (as an alternative to earning assets) will conform to the usual law of demand: the lower the price that has to be paid for holding money the greater the monetary requirements of the public. The price in this case is, of course, the interest which must be forgone if money is held. The liquidity-preference curve is thus a functional relationship between the demand for liquidity, i.e. cash, and the rate of interest. Hence, given the liquidity-preference curve at any time, the rate of interest must depend on the quantity of cash which is available to meet the demand for liquidity; the greater the quantity of cash the lower the rate of interest, and conversely. This line of argument leads Mr. Keynes to describe the rate of interest as "the 'price' which equilibrates the desire to hold wealth in the form of cash with the available quantity of cash".¹

If this "liquidity-preference" theory of interest does describe sufficiently the determination of interest, it follows that the general level of interest rates will tend to rise as the height of the boom is approached; because expanding income and expanding business will both raise the monetary requirements of the public. As long as the banks are able and willing to meet this expanding demand by supplying an increasing quantity of credit money, higher interest

¹ *Op. cit.*, p. 167.

rates can be postponed ; but if and when the point is reached at which the banks can no longer supply the additional money required, interest rates must begin to rise, to check the demand for liquidity. When the symptoms of an incipient depression have definitely established themselves, liquidity - preference rises sharply owing to the " bearishness " of investors, and for the time being this is reflected in the sharp rise in interest rates which usually accompanies the actual crisis.

But to demonstrate the inevitability of a decline in investment at the peak of the boom, it is necessary not only to show the probability of a tendency for interest rates to rise, but also to show that the marginal efficiency of capital will not rise to a compensating degree. In actual fact, Mr. Keynes holds that it is the sudden *collapse* of marginal efficiency which is primarily responsible for the slump. He admits that the rise in the rate of interest " may certainly play an aggravating and, occasionally perhaps, an initiating part " ;¹ but he places the main emphasis on the fall of marginal efficiency. How can we explain why investors should suddenly pass from a mood in which they assess at a high figure the probable returns from additional investment, to one in which the prospect is so bleak that they consider investment hardly worth undertaking ?

Undoubtedly, the explanation is to be found, in part, in psychology. It is well known that " an excited man passes from one form of excitement to another more readily than he passes to quiescence ".² Hence once the basis for the optimism of investors is weakened,

¹ *Op. cit.*, p. 315.

² A. C. Pigou, *Industrial Fluctuations*, p. 83.

we can expect a violent revulsion of sentiment. But there must still be some "real" cause responsible for administering this emotional shock to investors.

This is to be found in the fact that the marginal productivity of capital tends to diminish as the supply of capital-assets increases. This tendency, like all other economic tendencies, requires the fulfilment of certain conditions: in particular we have to assume that neither the growth of the employed population nor developments in industrial technique are sufficient to offset the decline. Now, during the early stages of the boom additional investment, owing to the "multiplier", promotes increased employment; and the consequent increased demand for consumption goods warrants, with the existing "structure of production", an increased output of capital goods. In fact, as is well known, the relation between the demand for consumption goods and the derived demand for capital goods is such that, given the rate of interest, an increase in the former gives rise to a more than proportionate increase in the latter.

But a stage must ultimately be reached at which the rate of increase of employment and consumption begins to slow down, as the physical limit to the expansion of employment is approached. And, owing again to the peculiar relationship between the demands for consumption and capital goods (dignified by Mr. R. F. Harrod¹ with the title of "the Relation"), the slowing-down of the expansion of demand for consumable goods must result, assuming no change in the "structure of production", in an absolute decline in the demand for capital goods. Once this point is reached at which the additional capital requirements arising

¹ *The Trade Cycle*, p. 53.

from the growth of the employed population begin to decline, the maintenance of an undiminished rate of investment requires a steady "lengthening" of the structure of production, i.e. resort must be made to methods of production employing increased amounts of capital per unit of output. In Mr. Hawtrey's terminology, once the rate of increase in employment begins to decline, the amount of capital required for "widening" purposes diminishes, and the "deepening" of capital must be resorted to if the rate of production of capital goods is to be maintained.

But it follows from the law of diminishing returns in its most fundamental form, that this "deepening" process, or resort to more "roundabout" methods, implying as it does an increase in the amount of capital employed relatively to labour, must cause the marginal productivity of capital to decline, assuming, of course, no changes in knowledge of industrial technique. And it seems reasonable to presume that during the very short period of active boom, technical developments will not occur on a sufficient scale to offset completely this tendency for the yield on new investments to decline. Hence, once the point at which the rate of increase of employment begins to decline is reached, investors must expect, if they make rational calculations, lower yields on new investments than have been obtained in the previous stage of the boom. In other words, the marginal efficiency of capital ought to fall.

For a time, the optimistic spirit of investors, engendered by the rising level of profits and the handsome gains from capital appreciation, may prevent estimates of prospective yields from falling, despite the fact that marginal productivity must diminish. Ultimately,

however, when lower returns than had been expected are realised, investors will suddenly adjust their ideas of marginal efficiency and there will be a drastic revaluation of stocks and shares. Mr. Keynes describes the collapse of the marginal efficiency of capital thus : " It is an essential characteristic of the boom that investments which will in fact yield, say, 2 per cent in conditions of full employment are made in the expectation of a yield of, say, 6 per cent, and are valued accordingly. When the disillusion comes, this expectation is replaced by a contrary " error of pessimism ", with the result that the investments, which would in fact yield 2 per cent in conditions of full employment, are expected to yield less than nothing ; and the resulting collapse of new investment then leads to a state of unemployment in which the investments, which would have yielded 2 per cent in conditions of full employment, in fact yield less than nothing." ¹

Mr. Keynes' description of the trade cycle as " being occasioned by a cyclical change in the marginal efficiency of capital " ² is, despite the novelty of the concepts with which it is elaborated, less revolutionary than might at first be supposed. I have referred earlier to Mill's view that the rapid accumulation of capital during a boom lowers the rate of profit which can be obtained and so induces investors to hack up " bubble " schemes in the hope of securing better returns. The tendency for profits to fall in a progressive society was part of the stock-in-trade of the classical economists ; Mr. Keynes has resurrected it and put it to effective use. Again, Karl Marx based his theory of crises on the " Law of the Falling Tendency of the Rate of Profit " (though his reasons for formulating such a

¹ *Op. cit.*, pp. 321, 322.

² *Ibid.*, p. 313.

proposition were different from those of the classical school).¹

7. THE IMPLICATIONS OF MR. KEYNES' ANALYSIS

If this explanation of the trade cycle be accepted as sound in its essentials, what wage policy is indicated as the most appropriate in the boom? Mr. Keynes has comparatively little to say on the subject of wage policy during the boom. He advocates "the maintenance of a stable general level of money-wages" in a closed system,² but the arguments with which he supports this policy all relate to conditions during the depression, no mention being made of the possible advantages of such a policy during the phase of expansion. Elsewhere,³ however, he expresses sympathy with those who attribute slumps to underconsumption, and declares that "these schools of thought are, as guides to practical policy, undoubtedly in the right". He differs from them theoretically in that they believe the trouble to be due to too much investment and too little consumption; whereas he is of the opinion that to ward off slumps both investment and the propensity to consume need to be stimulated. "Whilst aiming at a socially controlled rate of investment with a view to a progressive decline in the marginal efficiency of capital, I should support at the same time all sorts of policies for increasing the propensity to consume. For it is unlikely that full employment can be maintained, whatever we may do about investment, with the existing propensity to consume."

¹ Dr. Erich Roll has drawn attention to the formal similarity between the Marxian theory of crises and modern theories couched in terms of savings and investment (*About Money*, p. 184).

² *Op. cit.*, p. 270.

³ *Ibid.*, p. 325.

But we are left in the dark as to whether he would give his blessing to the proposal to raise wage rates more rapidly during booms, which generally figures prominently in the programme of the underconsumptionists. The only proposal for increasing the propensity to consume which Mr. Keynes specifically mentions is that for reducing the inequality of incomes by an extension of the taxation of the rich.¹

According to Mr. Keynes' analysis, wage policy can contribute to the stabilising of production and employment only through its effects on what he describes as the three "independent variables" of the system, viz. the propensity to consume, the schedule of the marginal efficiency of capital and the rate of interest.

(1) *The propensity to consume.*—As to the first, the greater the success of labour organisations in preventing the fall in relative wages² which normally occurs in boom conditions, the greater is likely to be the propensity to consume, since there will then be little or no redistribution of aggregate income in favour of the well-to-do. In fact, if at the peak of the boom when investment is on the point of declining, the propensity to consume could actually be raised, it might be possible to maintain approximately full employment, despite the diminution of investment, because the "multiplier" would be increased.

(i) But first the question arises: Is it possible to check the decline in relative wages during a boom by progressively raising wage rates? It is commonly assumed to be self-evident that a prompt raising of wage rates could eliminate the "lag" of wages behind profits. But Mr. Harrod has suggested reasons for

¹ *Op. cit.*, pp. 372-4.

² *I.e.* the proportion of aggregate income distributed as wages.

occurs wage rates rise all round by a certain percentage. Since marginal prime costs and average prime cost will both increase by the same percentage, the ratio between the two must necessarily remain unchanged. This clearly rules out the first of the two alternatives. As to the second, the ratio between demand price and marginal revenue depends solely on the elasticity of demand for a given output:

$$\frac{A}{M} = \frac{e}{e-1},$$

where A = average revenue (here called demand price), M = marginal revenue, and e = elasticity of demand. Now, as we are assuming that the fluctuation in output is of given size, whether wage rates are lowered or not, the elasticities of demand for the component parts of the aggregate output will not be affected by the raising of wage rates. And if elasticities of demand are unaffected so also will be the ratio between demand price and marginal revenue.

If, then, the rise in wage rates affects neither the ratio between average and marginal prime costs, nor that between average and marginal revenue, equilibrium prices will all rise by a percentage equal to the increase in prime costs. Aggregate income will also rise by the same percentage. The ratio between aggregate gross profits and aggregate prime costs will therefore be unaltered. Mr. Harrod's conclusion thus appears to be inescapable: "The plasticity of prime costs will in general have no tendency to produce a shift to or from profit in a fluctuation in output of a given magnitude. . . . In an economy in which prime costs were more plastic we should expect a greater fluctuation of prices to accompany a given fluctuation of output; but we

should not expect a greater shift to or from profit.”¹

(ii) It should, perhaps, be pointed out that the preceding argument relates to *gross* profit, i.e. the excess of sales-proceeds over prime costs. Clearly, if overhead or supplementary costs remain comparatively rigid during the short period of a boom, as is in fact the case, the greater the wage increase accompanying a given expansion of output the greater must be the shift to *net* profit. Similarly, the plasticity of wage rates during a depression, though it will fail to modify the proportion between aggregate gross profit and aggregate wages, will nevertheless cause a shift *from* net profit if overhead costs remain rigid. This differentiation between the movements of gross and net profits, however, has little significance for our present purpose. The recipients of rents, dehenturo interest and other items of supplementary cost are, broadly speaking, in the same category as the recipients of net profits, so far as their propensity to consume is concerned. If the plasticity of wage rates is to alter the propensity to consume associated with a given output, it must effect some change in the ratio between aggregate wages and aggregate gross profits; and this we have seen to be impossible.

(iii) Mr. Harrod relates his argument to conditions of imperfect competition; but it is clear that where perfect competition prevails it is equally impossible, with a given fluctuation in output, to alter the proportion between aggregate wages and gross profits by increasing the plasticity of wages. For, where competition is perfect, the short-period equilibrium price equals marginal prime costs; and since a given percentage increase in wage rates will raise marginal prime costs

¹ *Loc. cit.*

and average prime costs in equal proportions, there will be no change in the ratio between price and average prime costs, and therefore no change in the wage-profit ratio.

(iv) Attention must be drawn to an important assumption which underlies the whole of this argument relating to the effects of wage plasticity in a period of boom. It is assumed that at every stage of the boom outputs are sold at their short-period equilibrium prices, i.e. at prices which, under perfectly competitive conditions, are just equal to marginal prime costs, or which, under imperfectly competitive conditions, equate marginal revenue and marginal prime costs. In other words, it is assumed that the "lag" of wages behind profits and prices is not due to any failure of employees to obtain wages equal to their marginal net productivity; so that any rise in wage rates must cause prices to rise *pari passu*. Now, as long as there are unused labour resources in all parts of the system, available for employment at current rates of wages, we can legitimately assume that the rigidity of wage rates has not kept wages below their marginal productivity equivalent; for we can rely on employers, under the stimulus of the profit motive, to extend their purchases of labour up to this equilibrium point.

But if, owing to monetary expansion, the demand for labour continues to rise when there is no longer any additional labour to be purchased, wage rates must be raised if an equilibrium is to be established. And a rise in wage rates under these circumstances, provided the increase does no more than fill the gap between price and marginal prime costs (under competitive conditions) or between marginal revenue and

marginal prime costs (under imperfect competition), will not cause any further rise in prices and will effect a transfer from aggregate profits to wages. In short, as long as a system still falls short of full employment, the plasticity of wages cannot modify the ratio between profits and wages associated with a given aggregate output; and if wages are varied there will simply be a corresponding variation in prices. But when full employment is reached and prices continue to rise, i.e. when the stage of what Mr. Keynes calls "true inflation"¹ is reached, plasticity of wages is required to raise rates to the level of marginal productivity and to prevent a redistribution of aggregate income in favour of profits.

Hence, no wage policy can be expected to modify the propensity to consume associated with a given output, as long as employment is still capable of further expansion; but when true inflation is occurring, rising wages can modify the propensity to consume, up to the point where wages are on a level with marginal productivity.

(v) *The cause of the "wage-lag".*—One final point remains for discussion in this connection. If the "lag" of wages behind profits, and generally also behind prices, is not due to a remediable delay in adjusting wage rates, to what is it due? Clearly, if a shift to profit unavoidably accompanies a given expansion of output, the implication is that marginal prime costs must have risen relatively to average prime costs (or, where there is no upward movement of prices, that average costs have fallen relatively to marginal costs). In the stage of recovery from depression, average prime costs may fall while marginal prime costs remain

¹ *Op. cit.*, p. 303.

constant, owing to the spreading of what may be called the "fixed prime costs" over an increased output. Prime costs, i.e. the costs of the factors employed with existing equipment, may vary more or less directly with output—the "variable prime costs"—or may remain constant within a fairly wide range of variation in output—the "fixed prime costs". In the case of railway passenger transport, for instance, a 10 per cent increase in the volume of traffic may not necessitate the running of any additional trains; it may merely result in the better utilisation of the existing services. There need therefore be no increase in such "fixed prime costs" as the wages of drivers, firemen and guards, signalmen, stationmasters, permanent-way men, etc. On the other hand, it may be necessary to strengthen station staffs in order to deal with the extra traffic; the greater weight of the trains will involve some extra fuel costs, and various other additional miscellaneous expenses will arise. But up to the stage where the existing passenger services are used to capacity, the expansion of traffic will permit a steady reduction in average prime costs per passenger-mile. In this case, the falling average costs, marginal costs remaining unchanged, will provide the railway companies with a widened margin of profit per passenger-mile.

In the later stage of a boom, marginal costs are likely to rise relatively to average costs, owing to the tendency to "diminishing returns". This may show itself in various ways. (a) The expansion of demand may necessitate the re-employment of equipment of a somewhat out-of-date pattern; this may happen either because it takes time to install new equipment, or because the expansion of demand is considered to be

too temporary to warrant the installation of new plant which can cater adequately for it. When, for instance, a boom in steel necessitates the re-lighting of blast furnaces and steel-melting furnaces which have stood idle many years and are not of the most modern type, marginal costs must tend to rise relatively to average costs. (b) Similarly, inferior labour resources may have to be resorted to in a period of expansion. In a slump, employers who are compelled to discharge some of their employees will tend to dispense with the least efficient; so that when activity revives, the unemployed available for reabsorption will, on the whole, be rather less efficient than those already in employment. (It is, of course, evident that there must be many individual exceptions to this general statement.) And certainly in the more advanced stages of the boom the additional workers reabsorbed into employment will contain a high proportion of men of less than average efficiency. (c) The pressure of orders may have to be dealt with by working overtime, and overtime labour is notoriously more expensive than labour working the normal hours.

The shift to profit which occurs in a boom is thus seen to be unpreventable, in that it is due to a change in the ratio between average and marginal prime costs occasioned by the expansion of output. If it is desired to modify the propensity to consume by redistributing income between wages and profits, it is vain to seek in wage policy a means to this end; it must be sought in other directions, *e.g.* in the sphere of taxation.

(2) *The marginal efficiency of capital.*—Turning now to the second of Mr. Keynes' variables, the marginal efficiency of capital, we have to consider whether wage policy can help to check a slump by its influence on

this factor? Could a variation in the general level of wage rates, upwards or downwards, at the stage of the boom where the marginal efficiency of capital and the rate of investment begin to decline, restore the prospects of profit and so keep up the rate of investment?

(i) It has been argued above that wage variations are powerless to alter the wage-profit ratio associated with a given output; prices will simply be adjusted to the change in marginal costs and leave the relative shares of wages and profits unaffected. A given all-round rise in wage rates would thus tend to produce approximately equal percentage increases in the cost of additional investment goods and in the amount of profit which they yield. The *rate* of profit which can reasonably be expected on newly produced capital goods should not therefore be affected by an all-round increase in rates of pay.

(ii) But, it should be remembered, this argument relates to rates of *gross* profit; and entrepreneurs are primarily interested in rates of *net* profit. Now, as most of the items comprised in overhead expenses remain much more rigid than wages during a boom, *e.g.* fixed interest payments, rents, certain insurance charges, etc., the rate of net profit earned on existing investments would tend to rise in response to an increase in the general level of wages. And although the additional overhead expenses incurred in connection with new installations and extensions of equipment would tend to be on a rising scale, it is unlikely that they would all rise as rapidly as wage rates. To some extent existing fixed charges (*e.g.* local government debt charges), unaffected by the rising price level, could be spread over the output yielded by the additional capital equipment. Hence, it seems reason-

able to expect that there might also be some rise in the rate of net profit yielded by newly produced assets.

(iii) But the marginal efficiency of capital, the *prospective* rate of return on new investment, is not always based on rational calculations. In weighing up the probable consequences of an all-round increase in wage rates, each entrepreneur will tend to assume that what holds good for his particular firm or industry will be equally applicable to industry as a whole. We know how easy it is, in sublime disregard of the "fallacy of composition", to contend that if a tariff is good for the motor-manufacturing industry, or restriction of output good for the hop-growing industry, therefore tariffs or restrictions of output are equally beneficial to the totality of industries. In the same way, the entrepreneurs in each trade know that a rise in wage rates, if applied in isolation to their particular trade, raises costs and lowers rates of net profit, and will quite naturally believe that similar consequences must follow if wage increases are universally applied. Hence, there is good reason for thinking that any attempt to keep up the marginal efficiency of capital by raising wages would make the slump more certain, since investment prospects would be generally deemed to have deteriorated.

On the other hand, a general lowering of rates of wages and of prices is calculated to reduce the rates of net profit, both on existing investments and on new investment. Nevertheless, since entrepreneurs know that the profits of their individual firms can be expanded by cutting wages, it is probable that if wage reductions were general, prospects of profit would everywhere be considered to have improved and investment would be stimulated. But, though the stimulation

of investment by lowering wages at the height of the boom might serve to prolong the boom for a time, at some stage investors would still have to realise that the hopes they had entertained in connection with this additional investment were doomed to disappointment, and the marginal efficiency of capital would then collapse. And the resulting recession would almost certainly be even more severe and prolonged, since the additional investment induced by the lowering of wage rates would have reduced still further the marginal productivity of capital.

(iv) Hitherto, we have tacitly confined our argument to the case of a "closed" system, and have seen that adjustments of the general level of wages can contribute little or nothing to the prevention of the collapse of marginal efficiency. But aggregate investment in an "open" system is composed of home investment plus foreign investment; and it remains to be considered whether foreign investment might not be sufficiently stimulated by an appropriate wage policy to prevent a general depression within a particular country. Now, if wage rates could be reduced in one country when home investment was on the point of declining, the stimulus to exports might widen the favourable balance of payments with other countries and make possible an extension of foreign investment.

But, for this result to be achieved and maintained, two important conditions must be fulfilled. (a) Other countries must be willing to accept an enlargement of their unfavourable balance of payments without taking any steps to counteract this tendency. Experience during the last depression shows conclusively that this condition is most unlikely to be fulfilled; country after

country has resorted to the limitation of imports and the stimulation of exports in an attempt to redress an adverse foreign balance. (b) Wage-levels in other countries must be maintained, or at least must not be reduced to the same degree. In practice, of course, trade depressions are nowadays world-wide in their incidence, so that all countries are likely to be lowering their wages together. And world-wide reductions in wages at the peak of the boom would be no more effective in preventing a slump than wage reductions within a closed national system.

(v) There is, however, theoretically, one wage policy which might raise both the marginal productivity and the marginal efficiency of capital at the crucial stage of the boom. If, when investment is on the point of shrinking, wage rates were progressively reduced in the capital-producing industries, the costs of production, and in consequence the prices, of new capital assets would fall and thus cause prospective *rates* of profit on new investment to be higher than they would otherwise have been. And as long as the demand for new capital goods had an elasticity of not less than unity, the amount of investment (as measured in terms of money) could then be maintained without diminution. If the demand for new capital goods were inelastic, the amount of investment would, of course, shrink, and with it the aggregate income, in spite of the fall in the prices of new capital.

To some extent, as was pointed out above, wage rates in this particular group of industries do already react in this way when activity begins to decline. But the wage adjustments are too slow and small in amount *to generate a revival of investment before the depression has become general*. In any case, it is not until the

symptoms of a recession have definitely established themselves in the form of lower prices, lower proceeds or increased unemployment, that the adjustments to wages are made.

But whatever may be the theoretical possibilities of such a wage policy, it is clearly quite impracticable. In the first place, to be effective, wage reductions would have to be made at a right moment impossible of determination, viz. at the time when, in the absence of any lowering of the costs of capital assets, investment would begin to decline. But the art of business forecasting is not yet capable of making such accurate and reliable prognostications as astronomy. If the right moment is missed and investment begins its declension, aggregate income will start to shrink, owing to the "multiplier", and a general recession is well-nigh inevitable. Of course, to make sure of not being too late, wage rates might be lowered before the peak of investment is reached; but such a procedure would certainly never be accepted by the wage-earners concerned. Although they are accustomed to fluctuating rates of pay, workers in the heavy industries would certainly insist on making hay as long as the sun continued to shine; they would require incontrovertible evidence of a worsening of trade before agreeing to discuss a drop in their wages; and by that time the right moment would have passed.

Furthermore, it would not be enough to reduce their wages on a single occasion; there would have to be repeated cuts if the decline in the marginal productivity of capital were to be offset over a longish period of time. But no policy of deliberately imposing steadily falling real wage rates on one group of workers, in the interests of general trade stability, could be tolerated by

public opinion; and least of all would it be tolerated by the workers concerned. Some more equitable means of promoting investment would have to be found.

(3) *The rate of interest.*—Finally, we must consider the possible repercussions of wage policy on the third variable, the rate of interest. Hitherto, we have tacitly assumed that any wage adjustments made during a boom have no influence whatever on the rate of interest, and that any variations in investment induced by wage policy are neither stimulated nor impeded by concomitant variations in the rate of interest. But in all the monetary systems of which we have any experience, wage policy does most certainly affect the course of interest rates.

(i) If wage rates rise during a boom, aggregate money income will be greater than it would otherwise have been, and this must affect the demand for money, both by income-receivers and by business firms. Money, in the form of currency or bank deposits, is required by income-receivers to finance the expenditure which has to be incurred between the successive instalments of income. Clearly, the longer this interval and the greater each instalment of income, the greater is the amount of money which will be held on an average day. Similarly, business firms have to bridge the gap between the incurring of production costs and the receipt of payments for their output; and again, the longer the period which they must wait before receiving payment, and the greater the value of their output, the greater the amount of money which they need to keep on the average day. Both these classes will therefore find it convenient to hold increased amounts of money if wages rise; in Mr. Keynes' terminology, the schedule of liquidity-preference will rise.

Now, as long as additional money is supplied by the State or the banks to meet this increased preference for liquidity, no rise in the rate of interest need occur. But hitherto a limit has always been reached beyond which the banks have not been prepared to go, with the result that interest rates have risen. Whether the banks should pursue some different credit policy from that which they have followed in the past cannot be discussed here, as it would take us too far from our subject. But clearly, as long as any such limit exists, wage increases, by raising the schedule of liquidity preference, can only have the effect of hastening the day when the limit is reached; they will therefore tend to shorten the boom.

On the other hand, if wage rates start moving downwards shortly before the limit of monetary expansion is reached, aggregate income will tend to shrink and the schedule of liquidity-preference will fall in consequence. Given the supply of money which the banking system is prepared to provide, this in turn should permit of a fall in the rate of interest. We have thus reached, by a different route, Professor Hayek's conclusion that in a system with a given effective supply of money, the undertaking of additional investment, or, in his terminology, the lengthening of the structure of production, requires a steady shrinkage of aggregate money income (though not, of course, of aggregate real income). If the supply of money is not increased and there is no voluntary shrinkage of income, investment will decline; a crisis will ensue; and thus a *forced* shrinkage of aggregate income, accompanied by all the evils of a general depression, will be imposed on the community. Theoretical analysis thus indicates that as long as the monetary system is liable periodically to

reach a limit beyond which no expansion of the supply of money is possible, the maintenance of the rate of investment so as to avoid a general depression requires the voluntary acceptance of smaller money incomes all round (including wages) whenever such a limit is approached.

(ii) But it is in the highest degree unlikely that the wage-earning classes would ever voluntarily accept such a deliberate policy. Organised labour rejects the case for general wage cuts even during a widespread slump. How much more vigorously would it oppose proposals for cutting wages before slump conditions had actually materialised! In the absence of voluntary acceptance, the imposition of such a policy could only embitter industrial relations and lower efficiency by weakening the incentive to work. Again, it must be admitted that it would be difficult to persuade people that they were becoming "better off", even though such were the case, if their money incomes were falling. A given increment of real income is psychologically much more satisfying if it comes in the form of a greater money income, prices in general remaining constant, than if it arises through prices falling more rapidly than money incomes.

(iii) Furthermore, even if the economic enlightenment of the general public advanced so far that the theoretical case for a diminishing aggregate income could be appreciated, there would still be a serious objection on the ground that under such an arrangement the rentier class, with its comparatively fixed money incomes, would be able to appropriate a steadily increasing proportion of this declining money income. Such a consequence would not only be generally condemned on the ground of its injustice, but would

also have unfortunate economic repercussions. Entrepreneurs would have the prospect of selling the output yielded by a given equipment at steadily falling prices, but with no corresponding reductions in the fixed interest charges they incurred in providing that equipment. Net profits would thus fall more rapidly than wages and still more rapidly than rentier incomes. The inducement to invest would thus be weakened.¹

To some extent, of course, fixed charges could be gradually reduced by conversion schemes, bankruptcies and so forth, but there is no doubt that they would fall less rapidly than gross profits. The stimulating effect of falling interest rates which the policy in question would produce would thus be counteracted, and possibly completely neutralised, by the weakening of the inducement to invest also generated by this policy; the precise outcome would depend upon how rigid these fixed charges proved to be in practice. The inflexibility of fixed indebtedness would inflict further damage by increasing the real burden of the National Debt. For these various reasons, the policy of reducing wage rates as soon as the limit of monetary expansion is reached, in order to lower interest rates and keep up the volume of investment, is simply not practical politics. And this would appear to be the only wage policy which, assuming the continuance of past monetary policy, might, though this is by no means certain, have some stabilising influence on the economic system.

General conclusions.—This brief survey of modern trade cycle theory has thus brought us to the negative

¹ Cf. R. F. Harrod, "The Expansion of Credit in an Advancing Community", in *Economica*, August, 1934, pp. 288 *et seq.*

conclusion that no practicable preventive of slumps is likely to be found in the "planned" adjustment of wage rates during a period of expanding activity. The leading explanations of the trade cycle agree in concentrating on the decline in real investment and the contemporaneous rise in the rate of interest as the crucial stage of the cyclical process, though they differ as to the causation of these characteristic features. It is difficult to see how a policy of accelerating increases in the general level of wage rates could counteract the tendency for interest rates to rise and for investment to fall: such a policy is in fact much more likely to bring the boom quickly to a head. In theory a steadily falling wage-level has more to commend it, though there is an element of doubt as to how effective it could be even under favourable circumstances. But circumstances would certainly not be favourable to such a policy owing to the resistance and friction it would generate.

CHAPTER IV

WAGE POLICY AND THE TRADE CYCLE—THE PERIOD OF DEPRESSION

WE have seen in the last chapter that economists have found no very convincing arguments to urge in support of the policy of raising wage rates during a boom, the strongest case, probably, being that put forward by the "underconsumption" school. It has been suggested that wage increases, by narrowing profit margins, might help to restrain the exuberance of investors and keep the boom within bounds; but even if we grant the assumption that all-round wage increases *would* narrow profit margins (and we have found good reason to reject this supposition), it is by no means certain that the psychological reaction of investors would be favourable to stability. The inability to secure large profits in familiar channels of investment might breed a greater recklessness. In any case, it is difficult to explain a general depression in terms of excesses, of overproduction, committed by all industries more or less simultaneously.

In fact, one feels that greater flexibility of wages during boom periods has commonly been advocated, not through a firm belief that the boom might thereby be perpetuated, but simply as a means of securing greater flexibility in the slump, when it *would*, it is alleged, be of real use. If workers are to be asked to accept reductions in rates in a time of depression,

increments must be conceded to them during the boom. Employers cannot, in all conscience, expect to have it both ways: an assured margin of profit, through wage reductions, in a slump, and a widening margin, through rigid wages, in a boom. But the real objective behind the advocacy of greater plasticity of wages would certainly appear to be the securing of prompter and larger reductions during a recession. As to the need for these reductions, there has, until quite recently, been something like unanimity among professional economists.

Why should there be this asymmetry in the alleged rôle of wage policy in the different phases of the trade cycle—nebulous and unconvincing reasons for urging plasticity during a boom, and its emphatic and confident advocacy during a slump? The explanation would appear to be quite simple. It follows from the general theory of wages that, given the conditions of real demand for labour in industry as a whole at any time, there is one level of real wages which will establish equilibrium, *i.e.* will prevent the appearance of either unemployment or unfilled vacancies. This equilibrium wage-level is equal to the marginal productivity of the supply of labour seeking employment at that wage. If wages are above this marginal productivity, part of the available labour will fail to find employment; conversely, if wages are below this level more labour will be required by entrepreneurs than is available, and some vacancies will remain unfilled.

Now the trade cycle, it is alleged, is characterised by fluctuations in the schedule of real demand for labour. During a boom, when the demand for labour is rising, any failure to raise real wage rates promptly can, at the worst, only result in the emergence of unfilled vacancies when all suitable labour resources have

been absorbed into employment. In fact, the greater the "wage-lag" the more rapidly will the stage of full employment be reached. And since the boom may collapse before the stage of full employment is reached, the marginal productivity of the labour actually in employment may never rise above wage rates, except possibly in the case of some highly specialised categories of skilled workers who become scarce in the later stages of the expansion. There is, therefore, no reason for thinking that any dire consequences are likely to follow from the rigidity of wage rates during a boom period; on the contrary, if rates are raised in too thorough-going a fashion there may be no expansion of employment at all.

But the situation is very different in a depression, when the demand for labour is falling. Any delay or inadequacy of the reductions in real wage rates must now, it is argued, cause a contraction of the volume of employment, and, of course, of production. Prompt wage reductions in these circumstances would have the effect of inducing entrepreneurs to keep up the volume of employment in spite of the decline in the marginal productivity of labour.

The formal correctness of the preceding argument cannot be challenged. Given the schedule of real demand for labour, an increase in real wage rates must cause the volume of employment to decline, except in so far as there exist unfilled vacancies before the wage increase occurs; and conversely, lower real wages will increase employment, unless all labour resources are already fully utilised.

But can a "harter" analysis, couched in terms of real wages and real demand functions, be legitimately applied to a situation which is what it is primarily

because barter is not practised ? The genesis of cyclical depressions is certainly to be found in the peculiar properties of a monetary system, and particularly in the possibility of using money as a "store of wealth" and varying the amount of wealth stored in this way by speeding up or slowing down the circulation of money. Unemployment arises in a slump not because of a change in the physical productivity of labour, but because a hitch in the monetary circulation causes a decline in the aggregate effective demand, in terms of money, for commodities in general. It appears, therefore, to the present writer, that an analysis which abstracts from the peculiar properties of money can lead to no valid conclusions when it is applied to a conjuncture which owes its origin to those properties.

In actual fact, wages are fixed not in terms of "wage goods" but in terms of money ; reductions in real wage rates can, therefore, be effected, if at all, only via reductions in money wages. But if, as a consequence of lower money wages, aggregate effective demand (in terms of money) and the general level of prices decline to an approximately equivalent extent, real wage rates will not fall and employment will not expand. The vital question to be considered (and barter analysis throws absolutely no light on this) is therefore : What is likely to be the effect of reductions of money wages on aggregate effective demand, i.e. on the rate of aggregate money expenditure in a given period of time ?

THE EFFECT OF REDUCTIONS OF MONEY WAGES ON AGGREGATE EFFECTIVE DEMAND

Resistance to money wage reductions during a general trade depression has been commonly defended

by the spokesmen of the wage-earning classes on the ground that if wages are reduced, aggregate purchasing power will shrink; consequently the demand for labour will fall so that employment will be no greater at the lower wage rates than it was at the higher. This contention has been usually condemned as fallacious on the ground that the immediate effect of a general reduction of wages is not to *destroy* purchasing power, but to *transfer* it from wage-earners to entrepreneurs, leaving aggregate purchasing power quite unaffected.¹ Purchasing power in the hands of profit-makers is just as capable of creating demands for labour as purchasing power in the hands of wage-earners; though, doubtless, the transfer from the one group to the other will cause some shift in the direction of the demand for labour.

But this rejoinder provides no proof that aggregate effective demand will remain unchanged. Obviously a transfer of purchasing power must occur if money wages are reduced, *assuming total money income to remain constant*; but it still leaves quite unsettled the problem as to whether we are entitled to make this assumption.² One might just as legitimately argue that wage reductions *will* reduce effective demand, on the ground that if entrepreneurs continue to produce the same real output, a reduction of money wages will cause aggregate money income to fall to the level which just permits the purchase of this output at the lower prices which the wage reductions make

¹ Cf. Professor T. E. Gregory in Addendum III to the *Report of the Committee on Finance and Industry*, pp. 219, 220.

² This assumption, which seems so eminently reasonable to many economic writers, was described as "preposterous" by the trade unionists giving evidence before the Macmillan Committee. See *Minutes of Evidence*, vol. ii. p. 324.

possible. Both arguments simply beg the question at issue.

The most promising line of attack on this problem is that indicated by Mr. Keynes'¹ analysis, viz. to investigate the probable effects of reductions of money wages on the three variables which together determine the magnitude of aggregate effective demand—the propensity to consume, the marginal efficiency of capital and the rate of interest.

(1) *The propensity to consume.*—As to the first, we have seen in the last chapter that the variation of money wage rates is not likely to modify appreciably the ratio between the wages and gross profits associated with a given output; for marginal prime costs and average prime costs will tend to vary by an approximately equal percentage, so that gross profits will continue to account for the same proportion of sales proceeds. There is, therefore, no reason for supposing that a general reduction of wages would redistribute the income associated with a given output in favour of profit-makers, so that the propensity to consume is likely to remain unaffected. That being the case, wage reductions are not likely to cause output and employment to expand through their effects on the first variable.

On the other hand, it also follows that the propensity to save is not likely to be increased. This disposes of the main objection to wage reductions raised by the underconsumptionists. Mr. Hobson, for instance, contends that wage reductions, by transferring income to the class which saves most, are a step in the wrong direction because they start all over again the tendency to oversaving which caused the collapse of the preceding boom. Such a policy, he declares, "can

¹ Cf. *General Theory of Employment, Interest and Money*, chapter 19.

only win a temporary alleviation by sowing the seeds of future trouble".¹

(2) *The marginal efficiency of capital*.—Secondly, are general reductions of money wages calculated to set up realisable expectations of higher rates of return on new investments? If we can answer this in the affirmative, then we can conclude that output and employment will certainly tend to expand.

(i) Let us take first the case of an open system maintaining fixed rates of exchange between its own and foreign currencies. Lower money wages will clearly enable the country in question to lower its costs of production relatively to those of other countries; exports will be stimulated, and the foreign balance will become more favourable. Additional capital will be invested in the production of goods and services for export, and aggregate income will increase in consequence to an extent determined by the "multiplier". But, as we have noticed earlier, the achievement of this favourable reaction is conditional on the willingness of other countries to permit an adverse movement of their balance of trade without resorting to tariffs, quotas, etc., and to maintain their own level of money wages undiminished. Neither condition is likely to be realised in full at a time of widespread world depression.

But if, when business is active in the world as a whole, one country finds its export trades depressed owing to the relatively high level of its wage costs, the cutting of money wage rates is certainly one of the two alternative remedies—the other being, of course, currency depreciation. It is generally admitted that Great Britain was in this position between 1925 and

¹ *Economics of Unemployment*, p. 92.

1931. We returned to the gold standard at a rate which made our whole price and income structure too high, relatively to that of other countries, for British exporters to compete effectively in foreign markets. And as we were determined not to devalue the currency, the solution of the abnormal unemployment of the period could be found only in the downward adjustment of money incomes, including wages. The many economists who criticised the rigidity of wages, especially in the sheltered trades, during this period, were thus on very firm ground. But it does not follow that because money wage reductions are sound when a country's price and income levels are out of gear compared with those of the rest of the world, they are equally to be recommended when that country, along with the rest of the world, is suffering from a cyclical depression.

(ii) In a "closed" system the problem is rather more complicated. Since wage reductions are not calculated to modify the wage-profit ratio associated with a given output, the rate of profit on the capital cost of newly produced assets will also be unaffected (provided that no further change in wages occurs after these assets are acquired). In other words, a given reduction in wages, assuming there to be no expectation of further wage changes in the near future, would not raise the marginal efficiency of capital, if all entrepreneurs based their actions on a rational calculation of probabilities.

(iii) But each entrepreneur may nevertheless believe that the fall in the price of his product, made possible by the cuts in wages, will enable him to secure a larger share in the aggregate effective demand, and he may, accordingly, undertake additional investment.

Since, however, the wage reduction will *not* have raised the profitability of this additional investment, each entrepreneur is doomed to find his expectations unfulfilled ; disappointment will then be followed by a reversion of output and employment to their former level.

(iv) If, however, wage rates rise again shortly after these additional assets have been acquired, and prices and *aggregate income rise with them*, the *rate of profit* on their capital cost (which was incurred when prices and wages were lower) may not fall below the original expectations of entrepreneurs. It may, indeed, exceed expectations since the entrepreneurs' fixed overheads will rise less rapidly than the prices at which they are able to sell their output. Hence, if wage rates are expected to rise again after a comparatively short-lived reduction, it is not irrational for entrepreneurs to undertake additional investment on the strength of that temporary reduction. For capital equipment can be acquired, and the overhead expenses connected therewith can be incurred, when prices are low, and the output from this equipment can then be sold on a rising market.

(v) On the other hand, if wage rates are expected to fall still further in the near future, it is wise for entrepreneurs to curtail new investment until they feel reasonably certain that rock-bottom has been reached. Hence, a system of wage adjustment which harnesses general wage rates to an index of the general price-level is not likely to help industry to climb out of a depression ; its probable effect will be to produce a long-drawn-out deflation, since each wage reduction will set up an expectation of a further reduction. If a wage reduction is to effect anything more than a very

short-lived recovery of investment, not only must it be made in such a way that entrepreneurs believe it to be final, but it must also be followed after a short interval by an actual rise in wages; otherwise, the higher rate of net profit expected at the time of the additional investment will not be realised.

In other words, the rate of net profit realised from a given output is greater if wage rates are raised; but, owing to the widespread belief amongst entrepreneurs that the reverse is the case, some expansion of investment might be stimulated by a reduction of wages, and this expansion might prove to be "justified", i.e. might yield the expected rate of return, if wage rates, and therefore prices, subsequently rose. A recovery of business confidence sufficient to serve as a basis for renewed expansion might conceivably thus be induced by temporary wage reductions. But there is no certainty that such a manoeuvre would succeed; if the subsequent rise of wages and prices were too long delayed, expectations of profit would be disappointed and investment would relapse; while if it came too soon, confidence might falter again. The success of the whole manoeuvre would be so dependent on securing the right psychological reaction of the business community that it would necessarily be a very dubious remedy.

(vi) During what is commonly described as the "secondary depression"—when the mere existence of a depression tends to produce reactions which accentuate and prolong it—wage reductions are particularly likely to be ineffective. Professor Röpke, for instance, who, on general grounds, advocates a greater plasticity of wages, nevertheless writes thus: "In times of enormous mass unemployment, such as accompanies the

secondary depression, the rigidity of the wage system can no longer be considered as one of the major causes of depression and unemployment. The elasticity of demand for labour has by then so much decreased that in many cases even a wage approaching zero would not restore the equilibrium of supply and demand on the labour market; cases of a negative wage even are not altogether inconceivable in a period like this." ¹

(3) *The rate of interest.*—It is the influence of wage reductions on the third variable, the rate of interest, which is by far the most favourable to recovery. The demand for money to hold, associated with a given aggregate output, on the part of both wage-earners and entrepreneurs, will tend to fall if wages are cut, and this, *ceteris paribus*, will lower interest rates.

(i) But it is now common knowledge that no speedy and spectacular recovery of trade can be induced by abnormally low interest rates, whether these are produced by banking policy or by a general deflation of incomes. If the marginal efficiency of capital is practically zero, even a 1 per cent rate of interest may have little immediate effect on investment. All that can be said for the lowering of interest rates by means of general wage-cuts is that it will make conditions more favourable to recovery if and when something occurs to raise the prospective yields of new investments.

(ii) Since wage-cuts will be accompanied by a lower price-level, there will be a relative increase in the real burden of fixed costs, so that some bankruptcies are likely to occur which might otherwise have been avoided. Hence, the lowering of wages in order to get down the rate of interest may, in the short period,

¹ *Crises and Cycles*, p. 211

cause more disinvestment than investment. Its influence, therefore, for the time being, may be unfavourable to recovery.

(iii) The case for wage reductions in a slump would, in fact, be greatly strengthened if they were undertaken as part of a wholesale scaling-down of every type of money income, including salaries and fixed rents, interest and dividends. To some extent rentier incomes can be reduced during slumps, *e.g.* by converting debenture issues to lower rates of interest, lowering rents when leases expire and so forth; but on the whole, they are certainly much more rigid than any other type of income. Doubtless, the recipients of such fixed incomes would feel morally justified in opposing the scaling-down of their incomes. Since they have to put up with the decline in their real incomes (through rising prices) which normally occurs during booms, they will consider themselves entitled to any fortuitous gains which arise from the fall in the price-level during slumps.

This argument, however, is not a sufficient vindication of the inflexibility of rentier incomes during slumps. Of the total fixed-interest-bearing investments made in the course of a complete trade cycle, the great bulk will most certainly have been made during the period of greatest activity, when the purchasing power of money is at its lowest. Both private enterprise and, unfortunately, public authorities are more willing to incur indebtedness when trade is good than when it is bad. Hence, as a class, the rentiers probably gain more than they lose from the price fluctuations caused by the trade cycle. If considerations of equity were the deciding factor, therefore, the rentier class should be prepared to accept some cuts in its money income

during a slump, even though there were no corresponding upward adjustment during a boom.

But any general scaling-down of rentier incomes would require a radical modification of practices which have long been current in the capital market. There is no reason why private individuals should not arrange for rent and interest payments to be varied according to some "tabular standard"; and a few such arrangements have been made.¹ But it is not a practice which is at all likely to spread. Public authorities can, of course, forcibly reduce interest rates on existing public debt and indemnify themselves by special legislation; and some governments have in recent years taken this step. This, however, to say the least, is a short-sighted policy, since it is bound to damage the credit of the government concerned and compel it, in future years, to offer higher interest rates than would otherwise have been necessary.

Theoretical analysis thus suggests that little can be expected from a policy of general wage reductions as a means of revivifying industry during a business recession. It will not modify the allocation of income between spending and saving, nor is it likely to raise the rate of profit which entrepreneurs can reasonably expect on new investments. It will certainly help to lower the level of interest rates; but against this favourable effect, which in any case may count for little in the short run, must be set the disadvantage of an increase in the real burden of indebtedness, both on entrepreneurs and taxpayers.

Moreover, the experience of wage reductions in the last depression tends to confirm these *a priori* con-

¹ Cf. Irving Fisher, *The Money Illusion*, pp. 122, 123.

clusions, though it must be admitted that it is impossible to demonstrate inductively that wage reductions do not accelerate trade recovery. But one might have expected, if wage policy really is a significant factor in the situation, that the last depression would be much less acute and the recovery more rapid in the United States than in Great Britain, since wages were much more plastic in the former than in the latter. Yet the reverse proved to be the case. "No country has suffered more intensely from the depression than the United States; and in no other country, and at no other time, have such wholesale and drastic cuts been made in wages, salaries and every element of money costs as were made in the United States between 1930 and 1933. The obvious moral of the American experience is that a general lowering of wage rates serves to accentuate and perpetuate the vicious circles of depression. Indeed the subsequent adoption by President Roosevelt of policies designed to increase consumers' purchasing-power is largely attributable to the widespread belief in the United States that the idea of countering a depression by lowering wages and money incomes has been shown by experience to be a fallacy."¹

This apparent incompatibility of recent American experience with the doctrine that wage-cuts are a specific for trade depressions may be due, as has been contended by Professor Robbins,² to the delay in enforcing wage-cuts. In the earliest stages of the American slump an attempt was made to keep up consumers' purchasing power by maintaining wage

¹ H. D. Henderson in a review of Professor Robbins' *The Great Depression*, in *Economic Journal*, March, 1935, pp. 122, 123.

² *The Great Depression*, p. 63.

rates ; it was not until the depression was established beyond all shadow of doubt that the policy of wage-cuts was generally adopted. But this attempted harmonisation of facts and theory is mere conjecture ; it is very far from certain that wage reductions would have had any more stimulating effects in 1929 than they did in 1930 and the subsequent years.

WAGE INCREASES AS A REMEDY FOR TRADE DEPRESSION

What, then, can be said for the opposite policy, commonly advocated by labour leaders and actually adopted in the New Deal, of raising money wage rates during a slump ? The arguments by which this policy has been supported have generally been condemned by economists as mere sophistries. Thus Sir William Beveridge writes : " It is true that at certain phases of the trade cycle, and if you are a very clever economist indeed who holds a particular theory as to the cause of trade cycles, you can put up a plausible argument that increased wages, even though they raised the cost of labour, might actually stimulate the employment of labour ".¹ Now admittedly most of the arguments which have been used to holster up this wage policy are deserving of this ironical reception, but not all of them. The argument to which Sir William himself referred, viz. that wage increases will bring " idle money " back into circulation and so stimulate effective demand, is not worth very much. There is obviously a world of difference between utilising " idle money " to employ more workers at existing wage

¹ " Should Working Hours be Shortened ", in *The Listener*, May 1st, 1935, p. 743.

rates, and utilising it to employ the same number of men at higher rates. In the latter case there is no stimulus to employment, since the whole of the additional purchasing power will be needed to buy the same output at the higher prices which must now be charged.

But we have seen that wage increases, by raising the general price-level, tend to reduce the real burden of fixed indebtedness; this supplies one substantial reason for advocating rising wages as a means of lifting industry out of a depression. Moreover, the main objection to wage increases at the height of a boom, viz. that they will cause interest rates to rise even more than they would otherwise have done, hardly applies in the depths of a depression; at such times, banks are generally willing to allow a considerable credit expansion at existing rates of interest. The rate of investment, and consequently the volume of employment, is not likely to be damaged by any adverse reactions on the rate of interest.

However, if there is only a limited amount of additional credit which a banking system can supply in the course of a given boom, the using up of part of the "slack" in the credit system to finance wage increases in the early stages of revival must presumably have the effect of shortening and lessening the subsequent expansion. Any benefit which might conceivably be derived during the depression from this policy would therefore be at the expense of output and employment in the later stages of the boom.

Furthermore, if one country, with fixed rates of foreign exchange, pursued alone a programme of wage increases, the slump in that country would almost certainly be aggravated through the adverse

repercussions on the export trades. Again, owing to the conviction of entrepreneurs that wage increases are unfavourable to business recovery, their outlook might become even more pessimistic and investment would then fall to a still lower level. If each entrepreneur were assured that his costs would rise no more rapidly than those of other entrepreneurs, *i.e.* no more rapidly than aggregate purchasing power, this unfavourable reaction could be minimised. But to provide a guarantee of this kind, it would be necessary to set up some central authority to arrange for all wage rates to rise *pari passu*; and the existence of an authority with general wage-fixing powers would introduce an additional element of uncertainty into the calculations of business men and would not, therefore, conduce to recovery. In view of these various considerations, all-round wage increases cannot be expected to help to resuscitate a depressed economic system; on balance, such a policy is more likely to do harm than good.

General conclusions.—Our examination of the probable influence of different wage policies on the course of the trade cycle, both in boom and depression, brings us to the final conclusion that a greater plasticity of wage rates than at present exists is not likely to make any appreciable difference, one way or the other, to the cyclical fluctuations in output and employment. An increased flexibility of wages during the phase of expanding activity could not prevent the decline in investment which precipitates the crisis; and, though there is one respect in which wage flexibility might have favourable repercussions during a depression, it appears to be highly unlikely, on a balance of the

factors affecting the situation, that it will stimulate investment in this phase of the cycle.

Moreover, it can be urged against the plasticising of wage rates that the instability of the price-level would thereby be accentuated, and so also would the fluctuations in the real burden imposed by fixed indebtedness ; and these are consequences with which we can very well dispense. It is certainly in the interests of entrepreneurs and taxpayers making contractual payments fixed in terms of money, and also of the rentier classes themselves, that the real burden of debts should fluctuate as little as possible. If, by de-stabilising money wage rates and thereby aggravating the instability of the price-level, it were possible to moderate trade depressions and attain a higher average level of output, these disadvantages arising from the wider fluctuations of the price-level might be borne with fortitude ; but we have found no good reason for thinking that such is likely to be the case.

PART II
DESCRIPTIVE AND CRITICAL

CHAPTER V

SELLING-PRICE SLIDING SCALES

OF the various methods of securing an automatic adjustment of wages to changes in the capacity of a particular industry to pay, the first historically was the selling-price sliding scale. This is an arrangement whereby the wages of a group of workers are made to vary, according to a prearranged scale, with fluctuations in the selling price of the product or products of those workers, it being assumed that a rise in selling price indicates ability to pay higher wage rates, and a fall the reverse.

The use of this method of wage regulation has been confined almost exclusively to the coal-mining, iron and steel and allied industries (such as the manufacture of coke and by-products, ironstone mining and limestone quarrying). One or two minor trades have adopted it, *e.g.* the London coal delivery trade, but no successful attempts have been made in Great Britain to extend its use in any other staple industries. In 1899-1900 the Lancashire cotton industry contemplated the introduction of a modified form of selling-price sliding scale, but the negotiations fell through, owing to lack of agreement as to the details of the scheme.¹ The first question that arises for consideration is, therefore, why the use of this method of wage

¹ See L. L. Price, "Conciliation in the Cotton Trade", in *Economic Journal*, June, 1901, p. 235.

adjustment has been restricted to this particular group of trades.

The explanation appears to be twofold. Firstly, as capital-producing industries they have always been liable to a much wider range of fluctuations in profitability, in consequence of the trade cycle, than the industries catering for consumption. They have therefore felt more acutely the need for prompt and adequate adjustments of wages to these violent fluctuations in their prosperity. As the level of selling prices was, in the short run, the principal determinant of the wages these trades could afford to pay, and as price quotations were easily ascertainable, it was natural that, as booms and slumps succeeded one another, the practice should develop of regarding fluctuations in selling prices as the best available index of wage-capacity. Secondly, the coal, iron and steel industries, unlike the others in the capital-producing group (such as engineering and ship-building), are engaged in producing fairly homogeneous or standardised commodities, the fluctuations in the selling prices of which could be easily calculated and legitimately compared over periods of time.

The earliest scale of which there is any record appears to have been "Old Thorneycroft's Scale", which as far back as 1841 regulated the wages of the puddlers employed by G. B. Thorneycroft, a Wolverhampton ironmaster, and certain other firms.¹ Under this scale, which was not apparently drawn up in writing, the puddlers received one shilling in wages for each £ in the selling price of marked iron bars. It was the forerunner of the Midlands iron trade sliding scale, in which, from 1872 to 1919, "shillings for pounds" was the basic principle. The establishment of concilia-

¹ See S. and B. Webb, *History of Trade Unionism* (1902), p. 484.

tion boards in the various coal-mining and iron and steel districts in the 1870's was promptly followed by the setting-up of formal sliding scales, *e.g.* in the North of England manufactured iron trade in 1871, the Midlands iron trade in 1872, the South Staffordshire coal trade in 1874, the South Wales coal trade in 1875 and so on. The selling-price sliding scale reached the height of its popularity between 1879 and 1889, during which period nearly all the areas engaged in coal-mining and iron and steel manufacture experimented with this method of wage regulation.¹

Contemporary economists approved of the method in principle, and welcomed it as a valuable agency for industrial peace. Professor J. E. C. Munro, the leading advocate of sliding scales, even went so far, in his unbounded enthusiasm, as to declare that the sliding-scale principle was "the greatest discovery in the distribution of wealth since Ricardo's enunciation of the law of rent",² and suggested that it should be extended to the regulation of mineral royalties and rents of every kind.

These early scales were, with one or two exceptions, comparatively short-lived; most of them remained in operation for two or three years and were then either revised, suspended or abandoned. For instance, the

¹ There is an extensive literature dealing with sliding scales, written mainly in the period when they were widely regarded as powerful agencies for improving the relations between employers and employed. Details of these early scales are contained in: L. L. Price, *Industrial Peace*; J. E. C. Munro, *Sliding Scales in the Coal Industry*, *Sliding Scales in the Iron Industry*, and *Sliding Scales in the Coal and Iron Industries from 1855 to 1889*; W. Smart, *Studies in Economics*; W. J. Ashley, *The Adjustment of Wages*; *Minutes of Evidence taken before the Royal Commission on Labour, 1891-2* (especially the evidence of Messrs. H. Bell, W. H. Patterson and W. Whitwell); *Report on Standard Piece Rates and Sliding Scales, 1900*; and *Report on Collective Agreements, 1910*.

² *Sliding Scales in the Iron Industry*, p. 26.

South Wales coal trade set up a series of five scales, with minor modifications in addition, between 1875 and 1902, when the sliding-scale principle was finally abandoned. The periods of these scales were 1875-80, 1880-82, 1882-89, 1890-92, and 1892-1902. This shortness of the average life of the early scales should not be regarded as evidence that even in their palmy days of popularity they proved unsatisfactory. Practically all the witnesses who gave evidence on the subject before the Royal Commission on Labour in 1891-92, were agreed that the parties to these sliding scales had no intention of working them without any modification over long periods; it was realised that the basis of the scale would need revising periodically, according, for instance, to changes in costs of production, two or three years being as long as one could reasonably expect a scale to last without modification.

The subsequent history of the sliding scale has been very different in the coal-mining industry and in the iron and steel trades. Already in 1891-92, when the majority of the miners' leaders expressed themselves before the Royal Commission as being in favour of the principle of the sliding scale, Keir Hardie was arguing before the Commission in support of the principle of the minimum living wage. Since then, the latter principle has become the basis of the policy of the miners' unions and the sliding scale principle has been discredited. Most of the scales in the coal industry were abandoned or suspended, never to be revived, in the 1890's; a few districts continued to use them for a time, *e.g.* South Wales and Monmouthshire until 1902, Northumberland and the Forest of Dean until Government control of the industry was established during the war (1917).

In the various sections of the iron and steel industry, on the other hand, the selling-price sliding scale has continued to be accepted by employers and employed as a satisfactory method of regulating wages, and at the present time the great majority of workers in this industry are covered by scales of this type. The fact that since the war two sections of the industry have adopted sliding-scale agreements for the first time, viz. the South-West Wales Siemens steel trade and the tinplate trade, is an indication of the confidence that the leaders of the industry still have in this method of wage regulation after their long experience of its operation. Moreover, the tendency in recent years has been to extend the scope of the sliding-scale agreements so as to include, in addition to the skilled process workers to whom the earlier scales mainly applied, maintenance men and semi-skilled and unskilled labourers. The only important centre of the industry which has never adopted the sliding-scale arrangement is the Sheffield district.¹

In 1933 there were about thirty selling-price sliding scales in the United Kingdom, covering approximately 160,000 workers, practically all of whom were employed in the iron and steel and closely allied trades.² This figure compares with 60,000 in 1910 and 220,000 in 1925. The decline since the latter year is due not to any reduction in the number of scales in operation, but to the decrease in the volume of employment in the trades concerned. The number of really effective scales in 1933 was, however, less than the figure given, for

¹ A few of the Sheffield firms do adjust the wages of their employees by reference to the melters' scale.

² See *Ministry of Labour Gazette*, April, 1933, p. 122. Details of these sliding-scale agreements are given in the *Ministry of Labour's Report on Collective Agreements*, 1934.

some of the scales were suspended, and in others wage rates had reached the minima provided under the agreement and were no longer subject to further reductions.

These scales are of two kinds.

(1) The great majority provide that the percentage additions to basic wage rates shall vary with changes in the ascertained price of the commodities produced, directly or indirectly, by the wage-earners in question. For instance, in the 1919 agreement covering the Cleveland and Durham blast-furnace workers, the basic wage rates (of which some are straight time rates and others time rates plus bonus on output) were payable when the ascertained price of No. 3 Cleveland pig-iron stood at 54s. a ton. Then for every 3d. by which the ascertained price exceeded 54s., $\frac{1}{4}$ per cent was added to basic wage rates. The average selling price per ton is ascertained quarterly by two firms of accountants, one being nominated by the Cleveland Ironmasters' Association and the other by the Cleveland and Durham Blastfurnacemen and Cokemen's Association; they examine the books of seven specified firms which are parties to the agreement and calculate the net average invoice price per ton at the works of these firms. Since the agreement was drawn up, in 1919, the basic selling price to which the basic wage rates correspond has been altered several times: it was raised to 61s. 6d. in July, 1922, and to 67s. 6d. in January, 1924; then it was lowered to 62s. 9d. in October, 1925; to 57s. in March, 1926; to 54s. in October, 1926; and finally to 50s. in April, 1934. The price of No. 3 Cleveland pig-iron was originally adopted as the regulative price, because it was found that it always approximated to the average price of all the other numbers of pig-iron.¹

¹ See Munro, *op. cit.*, p. 6.

In some cases workers have their wages regulated by the selling price of a commodity in the production of which they have only indirectly participated. For instance, the wages of ironstone miners and limestone quarrymen in most districts fluctuate in accordance with the changes in the selling price of pig-iron in the respective districts. The great bulk of the ironstone and limestone produced in this country is obtained from mines and quarries belonging to pig-iron manufacturers and is not sold in the open market ; hence a sliding scale for these workers must of necessity be based on the selling price of pig-iron, not of ironstone or limestone.

(2) In two scales, viz. those covering workers in the tinsplate and galvanising trades, wages are regulated by reference to so-called " margins ", i.e. the difference between the ascertained selling price of the finished commodity and the ascertained cost of the raw materials used in making it. For instance, under the agreement drawn up in 1921 by the Galvanising Conciliation Board and covering South Wales, the Midlands and the North-East Coast, the selling price of a ton of 24-gauge galvanised corrugated sheets, less the cost of the spelter used in their manufacture, is taken as the basis. Each ton of these sheets is assumed to require $1\frac{1}{2}$ cwts. of spelter. To allow for the lapse of time between the purchase of spelter and the sale of the finished sheets, the cost of the spelter is ascertained from the books of specified firms for the two-monthly period preceding that to which the ascertained selling price of sheets relates. The basic rates of wages correspond to a basic selling price, after deducting the cost of spelter, of £7 : 17 : 6 per ton ; then for every variation of 5s. in this basic price, wage rates fluctuate

by $2\frac{1}{2}$ per cent. The operation of this scale was suspended in December, 1927. In the tinplate trade scale, the cost of the tin and the steel bars is deducted from the ascertained price of certain sizes of tinplates.

An unsuccessful attempt was made in 1899-1900 to establish machinery for automatically adjusting wages in the cotton industry, it being proposed that "net margins" should be adopted as the basis of a kind of sliding-scale arrangement. The employers and workers in the spinning section were agreed on the general principle that wages should fluctuate with profits. The workers proposed that a net margin of $\frac{1}{4}$ d. a lb. between the price of yarn and the price of raw cotton should be regarded for purposes of the scale as indicating a rate of net profit of 5 per cent. The negotiations ultimately broke down through the failure of the parties to agree on the details of the scheme.

THEORETICAL OBJECTIONS TO SELLING-PRICE SLIDING SCALES

The selling-price sliding scale is based in principle on the assumption that the price of a commodity provides, on the whole, a reliable index of the profits being made in the trade producing it, and that it is therefore a satisfactory measure of the capacity of the trade to pay wages. It has sometimes been described as an application of the principle of profit-sharing to a whole industry. This, however, is a misleading description, as the sliding scale has none of the essential characteristics of profit-sharing proper; there is no charging of certain standard wages against the gross proceeds of a firm or trade, nor any sharing out in prearranged proportions of its ascertained profits. It is simply a device

for securing automatically and more rapidly than would otherwise be the case, that wages shall rise when industry can bear higher wages and fall when wage-capacity is declining. Let us examine this assumption and consider to what extent selling price can be accepted as a satisfactory index of the wages a trade can bear.

(1) It is certainly the case that short-period fluctuations in the demand for a commodity tend to be reflected, given the fulfilment of certain conditions, in short-period fluctuations in its price. But this does not in the least justify the assumption that there is a close and invariable relationship between the *extent* of a change in the prosperity of an industry and the *extent* of the contemporaneous change in selling price. In some circumstances, e.g. where the supply of raw materials and labour is very elastic or where capital equipment is being worked much below its full capacity, a considerable increase in output may take place before the slack is taken up and prices begin to rise appreciably; in other circumstances, where a shortage of raw materials, labour or other requisites of production soon makes itself felt, there may be a very rapid and considerable rise in price in response to a slight improvement in trade prospects. The responsiveness of prices to changes on the demand side must also depend on whether competitive, monopolistic or quasi-monopolistic conditions prevail in the trade concerned. Hence, the establishment of a rigid relationship between price fluctuations and wage fluctuations is almost certain, on some occasions, to cause wage rates to rise to a less extent than the industry could bear without endangering its normal profits, and on other occasions to a greater extent.

(2) One of the most serious objections to the ordinary selling-price scale is that it makes no allowance for the fact that changes in price may be due to changes originating on the supply side, *i.e.* in the conditions of production. A rise in price which is due to a prior rise in the prices of some of the factors employed, obviously does not indicate a capacity to pay higher wage rates; it indicates, in fact, precisely the reverse. If the firms in an industry are to maintain their normal profits despite an increase in their costs other than wages, then, in the absence of technical or organisational improvements, wage rates will have to be reduced. During the coal-mining dispute of 1926, for instance, the price of pig-iron rose considerably in consequence of increased fuel costs; the ascertained price of Cleveland No. 3 rose from 65s. 10½d. per ton in the January-March period of ascertainment to 104s. 4d. in the October-December period. Between February and November the volume of unemployment amongst blast-furnace workers increased from 18·2 per cent to 60·3 per cent. The rise in the selling price of pig-iron was associated, obviously, with an intensification of the depression in the industry, and indicated a reduction in the wages the industry could afford to pay, not an increase as was provided for under the scale.

On the other hand, a fall in the price of a commodity, when wholly due to a reduction in factor prices, clearly does not call for a reduction in wage rates; if abnormal profits are to be prevented, wage rates will have to rise. The termination of the coal dispute of 1926 was followed by a fall in coal prices and in pig-iron prices; the latter obviously indicated an improvement in wage-capacity.

This difficulty can be overcome to some extent by basing the scale on "net margins" instead of on straight selling prices, as in the case of the tinsplate and galvanising trades referred to above. None of the "margins" actually used, however, has entirely eliminated this difficulty, as they provide for the deduction from selling prices of raw material costs only, and make no allowance for possible variations in the prices of other factors. Strictly speaking, if the possibility of wage-changes in the wrong direction is to be completely circumvented, all costs other than wages and net profits must be deducted from the selling price in calculating the "net margins"; this is, broadly speaking, the arrangement that has been made in the scheme for determining the allocation of the "net proceeds" in the coal-mining industry.

(3) There is, however, a further difficulty arising from the supply side which cannot be overcome by any calculation of "margins". The marginal cost of producing a commodity may change in consequence of variations not only in the *prices* of the factors of production, but also in the *quantities* of these factors required in the production of the marginal unit of output. A commodity may be produced under conditions of diminishing or increasing returns; or improvements in technique may be responsible for continuous reductions in the real costs per unit of output. When the latter condition prevails, as has certainly been the case in the iron and steel industry during the sliding-scale period, there is obviously a possibility that a selling-price sliding scale may deprive wage-earners of any share in the gains arising from technical progress; money wage rates may fall *pro rata* with the reduction in selling prices, so that profits are continuously inflated.

Whether this would actually happen must depend on the behaviour of the monetary system, on how promptly basic wage rates could be adjusted to meet the change in the real cost situation, and on whether basic rates were on a time or piecework basis.

(i) *Time-workers.*—(a) If the monetary system were controlled so as to keep the general level of prices stable, despite progressive reductions in the quantities of factors employed per unit of output, strict adherence to unmodified selling-price sliding scales throughout the whole range of industry would result, on the average, in constancy of the money and real wages of time-workers. The additional money with which the price-level was kept up would simply have the effect of inflating profits.

(b) If, alternatively, the monetary system were managed so that aggregate money income were stabilised, and prices were allowed to fall as money costs were reduced, the operation of selling-price scales would be rather more favourable to wage-earners on time rates than in the preceding case. This is because these scales, in practice, are generally drawn up in such a way that the percentage variations in wage rates are less than those of selling prices; hence, as prices fall, money wages will fall more slowly so that real wages will rise somewhat. Even in this case, however, the sliding scales would have the effect of producing a shift to profit, since aggregate wages would decline, and we are assuming the monetary system to be managed so as to keep aggregate money income constant. The shift to profit, however, would be less than if stability of the price-level were the aim.

The tendency for money wages to decline as a consequence of technical progress, where these scales

are in operation, is one of the principal reasons for their unpopularity amongst trade unionists. "In general it seems a very risky policy to make wages depend on selling price. The march of invention and improvement in technical processes ought in normal times to result in a general lowering of prices, and thus wages would tend to diminish. It is true that base rates may be altered, but the onus is always on the workers, so that alteration is difficult to obtain."¹

(ii) *Piece-workers*.—Piece-workers, on the other hand, tend to be much more advantageously placed than time-workers under selling-price sliding scales. (a) In so far as technical improvements enable them to increase their weekly outputs, money earnings will, on the average, expand in a stable price system, as long as the basic piece rates remain unchanged. (b) In a falling price system, they would be still better off, for real piece rates would tend to increase. It seems probable that the continued popularity of sliding scales in the iron and steel trades is partly due to this consideration; they have not had the effect of depriving workers of a share in the gains of technical progress, owing to the fact that a large proportion of the workers covered by these scales are paid, wholly or in part, on a tonnage basis. The basic tonnage rates payable under the steel melters' scale, for instance, remained virtually unchanged between 1905 and 1930,² despite the huge increase in weekly outputs per furnace brought about by technical improvements. The result is that the steel melter has now become one of the most highly paid wage-earners in industry.

¹ *Industrial Negotiations and Agreements* (published by the T.U.C. and the Labour Party), p. 60.

² See *Ministry of Labour Gazette*, April, 1933, p. 124.

(4) A selling-price scale may fail to adjust wages to the level an industry can bear, because the commodity on whose ascertained price the scale is based is jointly produced with other products, the prices of which are not taken into account at all. For instance, the discovery of important new uses for slag, a by-product arising from the smelting of iron and steel, would tend to increase the profitability of the processes concerned ; but the selling prices of iron and steel products would not be likely to rise in consequence of this improvement in the economic condition of the industry. They would be much more likely, in fact, to fall if the price of this by-product rose.

A difficulty of this kind arose in the coal industry, especially in South Wales, under the sliding-scale system. In the South Wales district the scale was based on the ascertained average price per ton of large screened coal f.o.b. in the nearest port. The men began to complain, however, shortly before the final abandonment of the scale in 1902, that as the owners were securing much better prices for small coal (which ten years previously had been practically given away), they could afford to pay higher wages than were payable under the sliding scale.¹

For these various reasons, then, neither straight selling prices nor "net margins" can be regarded as satisfactory indices of the economic condition of an industry and of its capacity to pay wages. Selling prices may fall as a result of factors which raise the profitability of a trade ; they may rise in consequence of influences which depress a trade and lower its wage-paying capacity. Hence a selling-price scale may quite easily give wage-changes in directions the very reverse

¹ H. S. Jevons, *The British Coal Trade*, p. 495.

of those indicated by the economic condition of the industry.

THE IRON TRADE'S EXPERIENCE OF SLIDING SCALES

In practice, however, the sliding scales in the iron and steel trades appear to have worked much more satisfactorily than these theoretical objections would lead one to expect; on the whole, fluctuations in selling prices *have* reflected the short-period fluctuations in the prosperity of the industry. The diagram on p. 171 shows for each year between 1879 and 1935 the ascertained selling price of No. 3 Cleveland pig-iron and the total output of pig-iron in the United Kingdom, output being the best available index of the fluctuations in the activity of the industry.¹ Over this period, there were 39 years when the two series moved in the same direction (as compared with the preceding year), and 17 years when they moved in opposite directions; the diagram thus exhibits quite a considerable degree of positive correlation between the two series.

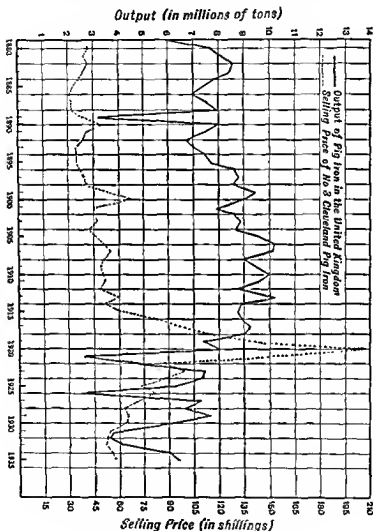
But the output curve is affected not only by the short-period fluctuations in industrial prosperity, but also by the secular expansion of the industry up to the outbreak of the war. We can separate out the short-period fluctuations by calculating the deviations of actual output from the general trend (for which purpose a nine-year moving average is taken). The following interesting results then emerge. In 16 of the 31 years

¹ The figures on which the diagram is based were abstracted from *Statistics of the Iron and Steel Industries*, published annually by the British Iron and Steel Federation.

between 1884 and 1914 the actual output stood above the general trend, so that these were presumably "good" years for the pig-iron trade. In 13 of these 16 good years the selling price of pig-iron was rising, and in only 3 was it falling. The remaining 15 years were "bad" ones, in that actual output fell below the general trend; in 11 out of these 15 years the price of pig-iron was falling, it was rising in 3 and constant in 1. During the pre-war period of sliding scales there was, therefore, quite a high correlation between variations in the selling price of pig-iron and the short-period fluctuations in the activity of the iron industry, as indicated by output. Indeed, if this had not been the case we can be quite certain that the industry would long ago have lost all confidence in the sliding-scale principle; neither employers nor employed would willingly adhere to a method of wage regulation which as often as not caused wages to vary in the wrong direction.

Nevertheless, if inappropriate changes in wages are to be avoided, it is essential that there should be no rigid adherence to the same sliding scale over a long period of time. However carefully the base and the scale of variations are calculated in the first place, changes in the technical efficiency of the industry, in the prices of the raw materials used and in other factors, are bound to necessitate both temporary departures from the scale and more thorough-going revisions at fairly short intervals. The wage rates payable when a given base selling price prevails may, at the time the scale is drawn up, permit the earning of something like normal profits; but a few months later the same wages and the same selling price may be yielding abnormal profits or losses. Those who have

had practical experience of sliding-scale adjustments agree that those scales have worked best in which there has been a willingness on both sides to take into



consideration other circumstances affecting the prosperity of the industry besides selling prices ; so that the men waive their claims to wage increases and the employers refrain from enforcing decreases when other indicators make it clear that the wage-changes due under the scale are inappropriate. Mr. A. Dudley Evans, writing of the experience of the Midlands iron trade with its sliding scale, has pointed out that during a considerable portion of its life this scale was not strictly adhered to, and opines that it was "the reasonable spirit of give-and-take" that made the scale workable.¹ In a number of sliding-scale agreements the ascertainment covers output as well as selling price, the variations in the output providing some check on the reliability of the ascertained price as an index of the prosperity of the trade.

SLIDING SCALES AND INDUSTRIAL PEACE

The main advantage claimed for selling-price sliding scales is that, while increasing the plasticity of wage rates, they minimise the risk of industrial disputes, since the parties agree beforehand as to the circumstances in which given wage-changes shall be automatically effected. The fact that the iron and steel industry is the only important trade both to use these scales and to remain free from major industrial disputes (apart from the general strike of 1926) for half a century, gives *prima facie* support to this claim. During the post-war period, for instance, iron and steel workers accepted wage reductions greater than those imposed in most other industries, without any conflict arising. The war had had the effect of driving

¹ "An Iron Trade Sliding Scale", in *Economic Journal*, 1909, p. 125.

up wages in the iron and steel trades to exceptionally high levels, the peak being reached in December, 1920, when the average earnings of blast-furnace workers were 118s. 2d. a week, and of workers at steel furnaces, rolling mills, etc., 105s. 11d. Twelve months later, when the post-war boom had collapsed, they had fallen to 70s. 4d. and 66s. 1d. respectively.¹ In the case of one sliding scale, according to Mr. (now Sir) A. Pugh's evidence before the Macmillan Committee, the percentage addition to basic rates fell by 100 in a single ascertainment.² To effect wage reductions of this size in so short a period is no mean achievement, and there can be no doubt that, in the absence of sliding scales, they could not have been negotiated without serious risk of a stoppage.

At the same time, however, we must beware of the presumption that the association of sliding scales with the iron and steel industry's remarkable record of industrial peace, demonstrates that the former is responsible for the latter. It may be that the successful avoidance of disputes and the continued acceptance of the sliding-scale principle are both the result of other factors peculiar to the iron and steel industry. This seems more probable when it is remembered that the same method of wage regulation was tried for a time in the coal-mining industry, but was found wanting and accordingly abandoned. Why is it that, while the leaders on both sides in the iron and steel trades have retained their confidence in the sliding scale over a period of sixty years, the miners have rejected it as unsound? The miners criticised the principle of the

¹ These figures have been taken from *Statistics of the Iron and Steel Industries*.

² *Minutes of Evidence*, Q. 4552

sliding scale on various grounds, *e.g.* that other factors besides selling prices should be considered in assessing the wages an industry can pay, that in any case future prices, not past prices, are the significant factor, that employers are induced to reduce prices knowing that this will automatically bring down wages, and so forth. But we can be quite certain that, in spite of these theoretical objections, the miners would not have abandoned the sliding scale if, on the whole, it had given them satisfactory results; nor, on the other hand, would the iron and steel workers have continued to accept it if the wages it yielded had consistently fallen short of what they considered a fair standard. We must therefore seek the explanation of the very different attitudes of the miners and the iron and steel workers to the sliding scale in the underlying economic conditions of the two industries.

Wages in the iron and steel trades.—In the iron and steel industry a number of factors combined to create a situation in which steadily increasing real earnings could be secured without the trade unions having to fight the employers continuously.

(1) In the first place, the technical efficiency of the industry has risen enormously during the sliding scale period, owing to the vast strides in the metallurgical arts. For instance, the annual output of the average blast-furnace in the United Kingdom has increased from 9614 tons in 1873 to 30,386 tons in 1913 and to 65,100 tons in 1935. In 1935 the average capacity of open-hearth furnaces in the United Kingdom was 65 tons, as compared with 39·4 tons in 1913. The increase in the capacity of furnaces, together with the adoption of mechanical furnace-charging and other technical improvements, has made possible huge increases in

the physical output per man employed. Mr. R. G. Glenday states that in pig-iron production a man now accomplishes in one hour what required 650 hours in 1882.¹ Even in the short period 1920-28 the production of pig-iron per man increased from 199.62 tons per annum to 300.65 tons, an increase of 50.5 per cent; and the output of sheet steel in the same period increased from 33.76 tons per man to 54.82 tons, an increase of 62.25 per cent.²

(2) Secondly, as a considerable proportion of the iron and steel workers covered by sliding scales have always been paid wholly or partly on a tonnage basis, the technical progress of the industry resulted in a steady increase in their average earnings until the post-war depression occurred. The tendency in the iron and steel industry to maintain tonnage rates unchanged over long periods has greatly assisted this upward movement of earnings. Even in the post-war period of depression the average earnings in the iron and steel trades were maintained at a considerably higher level than those in any other industry commonly described as "depressed", and as high as those in most of the comparatively prosperous trades.³ And this was achieved despite the fact that iron and steel prices (as measured in the Board of Trade index) fell more than the general wholesale price level, and despite the exceptionally poor financial results of iron and steel concerns⁴ and the heavy burden of unemployment

¹ *The Economic Consequences of Progress*, p. 67 n.

² Sir Arthur Pugh's evidence before the Macmillan Committee, *Minutes of Evidence*, vol. i., p. 317.

³ For substantiation of this statement reference should be made to Tables VII and VIII above.

⁴ Cf. Committee on Industry and Trade, *Survey of Metal Industries*, pp. 42-5.

(never falling below 14 per cent until the present boom developed and rising on occasion to 50 per cent and more, *e.g.* in 1921, 1926 and 1932).

The following table gives some idea of the general trend of earnings in the heavy iron and steel trades up to 1920, and brings out the comparative stability of earnings between 1923 and 1929, after the sharp reduction of 1921 and 1922.

TABLE XI

AVERAGE EARNINGS OF ALL WORKERS IN THE HEAVY
IRON AND STEEL TRADES¹

	s.	d.
October 1886 . . .	25	10
September 1906 . . .	33	0
„ 1914 . . .	35s.-36s.	
	s.	d.
December 1920 . . .	108	5
„ 1921 . . .	66	9
„ 1922 . . .	55	9
December 1923 . . .	62	10
October 1924 . . .	62	7
„ 1925 . . .	60	10
December 1926 . . .	62	0
October 1927 . . .	60	9
„ 1928 . . .	60	11
„ 1929 . . .	62	0
„ 1930 . . .	57	8
„ 1931 . . .	56	11
„ 1932 . . .	55	0
„ 1933 . . .	62	0
„ 1934 . . .	62	4
„ 1935 . . .	66	2

¹ These figures, with the following exceptions, are taken from the annual *Statistics of the Iron and Steel Industries*:—

- (a) 1886. Board of Trade wage census. Figure given relates only to blast-furnace workers in Durham and Cleveland.
- (b) 1906. Board of Trade inquiry into earnings.
- (c) 1914. Estimate of the Committee on Industry and Trade in *Survey of Industrial Relations*, p. 80.

The figure given for 1922 is the average for the whole year.

(3) Thirdly, the heavy iron and steel trades are an industry in which the relative unimportance of wages as an item in total costs has given the workers considerable protection against attacks on their basic rates, and has facilitated that maintenance of tonnage rates to which reference was made above. The following table, showing the composition of the costs of various iron and steel products, illustrates this point. The

TABLE XII
COSTS IN THE IRON AND STEEL INDUSTRY ¹

Products	1913			1924		
	Materials	Wages and Salaries	Other Expenses *	Materials	Wages and Salaries	Other Expenses *
	Per cent of Total	Per cent of Total	Per cent of Total	Per cent of Total	Per cent of Total	Per cent of Total
Basic pig-iron	82.5	8.9	8.6	80.5	11.0	8.5
Basic steel—ingots	73.5	14.8	11.7	71.5	18.5	12.0
Basic steel—semi-finished	70.8	16.3	12.9	68.3	18.1	13.6
Basic steel—sections	63.6	21.8	14.6	60.2	22.9	16.9
Basic steel plates	62.9	23.0	14.1	60.8	23.1	16.1

* Excluding depreciation charges.

figures in each case give the cumulative costs of the whole process from the smelting of the ore onwards; thus the 23.1 per cent of wages costs in the case of steel plates in 1924 includes the cost not only of the labour employed in rolling the plates, but also of that employed in the blast-furnaces producing the pig-iron and in the melting furnaces producing the steel from which the sheets are rolled.

The combination of these three factors probably accounts both for the remarkable absence of major

¹ Extracted from the statistics given in the report of the Committee on Industry and Trade, *Further Factors in Industrial and Commercial Efficiency*, pp. 130, 131.

disputes in the iron and steel industry during the last fifty years, and for the continued support of the sliding-scale principle in this industry. To some extent, of course, the success of the industry in maintaining peace must be attributed to the character of the leadership on both sides. The utmost possible use has been made of the very effective conciliation and arbitration machinery that exists in every section of the industry. The late Mr. John Hodge, for instance, who played an outstanding part in building up the trade union movement in the steel industry, declared that his early experience of strikes led him to vow that he would do everything that was humanly possible to prevent them ;¹ and he carried out this laudable intention with extraordinary success. But whether the leadership of an industry is conciliatory or militant in character must depend at bottom not on whether the industry is blessed with more or less than its fair share of men of good will, but on its underlying economic characteristics. And economic circumstances have certainly enabled the leaders of the iron and steel workers to attain their ends by the pursuit of a conciliatory policy.

Wages in the coal industry.—On the other hand, in the coal-mining industry conditions have been almost the reverse of those in the iron and steel trades.

(1) In the first place, coal-mining is one of the few industries in which the physical output per man employed has on the whole declined in the past half-century. Improvements in mining technique have been insufficient to counteract completely the tendency to increasing costs. For the five years 1879–83 the average tonnage of coal raised per person employed was 319 per annum, the maximum figure being 333 tons in

¹ John Hodge, *Workman's Cottage to Windsor Castle*, p. 46.

1883. This figure had fallen to 282 tons in 1889-93 and to 257 tons in 1909-13. Since the war the trend has moved upwards again, output averaging 262 tons per annum in 1929-33 as compared with 195 tons in 1919-23. This increasing physical return in recent years is due to various factors, chief among which are the extended use of coal-cutting machinery and the sinking, since the war, of a number of new large-scale pits which are planned and operated on the most modern lines.

(2) Secondly, in an industry producing under conditions of "diminishing returns" increasing difficulty will inevitably be encountered in maintaining real wages unchanged, unless the price of the industry's product continually rises relatively to the general price-level. Between 1880 and 1900-1904 coal prices were on the whole rising relatively to prices in general; but between 1900-1904 and 1910-13 this tendency was reversed. Again, during the post-war depression coal prices have fallen to a greater extent than the indices of wholesale prices in general. The miners, therefore, during the greater part of this century, have been confronted with the superhuman task of trying to increase or to maintain their real earnings in the face of a reduction in their output per head, this reduction not being compensated by a rise in the relative price secured for that output.

(3) Moreover, direct wage costs constitute a greater proportion of the total costs of production of coal than of practically any other commodity. In 1913 wages and salaries accounted for 75.3 per cent of the total costs of coal, and in 1925 for 74.3 per cent.¹ Every depression

¹ Committee on Industry and Trade, *Further Factors in Industrial and Commercial Efficiency*, p. 127.

in the coal trade, therefore, has inevitably led the owners to press for reductions in wages, their main item of cost, and any attempt on the part of the miners to improve their wage position has similarly met with resistance, since it would involve something approaching a proportionate increase in the selling price of coal.

It seems probable, then, that the marked difference between the miners and the iron and steel workers as regards the maintenance of industrial peace and the attitude to the sliding scale, is due to the contrast between the basic economic facts of the two industries. The iron and steel workers, finding economic conditions favourable to a general upward trend of real earnings, have remained willing to utilise sliding scales as a means of meeting, with a minimum of friction, the short-period fluctuations in the prosperity of their industry. The miners have not been in this happy position; economic circumstances have been such as to compel them to fight hard and harass their employers continuously in an attempt to stem the downward tendency of wages. Accordingly they long ago ceased to accept the principle that their wages should be adjusted by reference to changes in the selling price of coal, and concentrated their efforts on getting their employers and the State to recognise the principle that a decent minimum living wage should be a first charge on every industry and should not fluctuate according to the profitability of particular industries. Nevertheless they have not been able to release themselves from the influence which selling prices have always exercised on their wages. Even after the formal sliding scales had been abandoned, selling prices continued to be one

of the main determinants of the variations in the percentage additions to the basic rates in the mining industry ;¹ and under the present proceeds-sharing schemes selling prices are still, indirectly, one of the principal factors affecting wage rates.

There is a further consideration to take into account in judging the efficacy of sliding scales in promoting industrial peace. In practice, as we pointed out above, these scales are continually being modified, by agreement to waive the wage variations due under the scale or by revision of the structure of the scale. The basic price in the Cleveland scale, for instance, has been altered six times between 1919 and 1934. These revisions of the terms of a sliding scale give the same opportunities for the development of a dispute as the revision of collective agreements in other trades. The real value of sliding scales is to be found, therefore, not so much in the fact that the circumstances in which given wage-changes shall occur are agreed upon for a long time ahead, as in their psychological effects. They accustom workers to continuous fluctuations in their rates of pay, so that a wage reduction which in other industries would be regarded as a retrograde step to be resisted to the uttermost, is treated simply as an incident in the working of the scale. Workers can accept an automatic wage reduction more philosophically, knowing that when trade improves they will get an automatic increase. The frequent revisions of the sliding scales can thus be negotiated in a propitious atmosphere, since both parties are accustomed to continuously fluctuating rates of wages.

¹ Cf. J. W. F. Rowe, *Wages in the Coal Industry*, p. 40.

THE TRADE UNION ATTITUDE TO SLIDING SCALES

There appears to be little or no prospect of the extension of the selling-price sliding scale to other industries, the British trade union movement as a whole being strongly opposed to this method of wage regulation. Amongst the criticisms levelled by trade unionists against this type of sliding scale, in addition to those already considered, are the following.

(1) Firstly, "the Sliding Scale in question is based on the theory that supply and demand should determine the workers' wages, while the general Trade Union view is that an adequate wage for all workers should be a first charge on the industry. Many workers feel inclined to press for higher wages when profits are high, but to carry this out in a deliberate scheme implies a lowering of the standard, perhaps below a really adequate wage, when trade is bad, and this is a position which ought not to be taken up."¹ Hence, even if selling prices were an adequate index of variations in profits, which they certainly are not, organised labour would still object to the sliding scale on the ground that it is inconsistent with the principle of the "living wage". Undoubtedly much of the antagonism to the early scales, especially in the mining industry, was due to the absence of minimum rates, or at least, to their diminutiveness where they were introduced. As one oft-quoted miner put it, "The — thing has no bottom".

In practice, modern sliding scales do provide for minimum rates below which wages are not allowed to fall, however low the ascertained price may drop;

¹ *Industrial Negotiations and Agreements*, p. 49.

frequently the standard basic rates are also the minima under the agreement. In these cases a sliding scale becomes an arrangement for paying something over and above the agreed minima whenever the industry is sufficiently prosperous, the amount of the addition depending on the height of the price. Whether the minima laid down in these agreements are regarded as an adequate living wage obviously depends on one's criterion of adequacy. In some cases they have been admitted by the employers to be inadequate, and *ex gratia* bonuses have been paid to the lower-paid workers when the percentage additions to base rates payable under the scale have fallen to a low level. For instance, in the South-West Wales Siemens steel trade special bonuses have been paid on a graduated scale to those workers whose base earnings are less than 52s. a week, the maximum bonus being 50 per cent to men whose base earnings are 20s. or less. Similar special bonus arrangements have been made in the North Lincolnshire, North and South Staffordshire pig-iron trades and in the tinplate trade.¹

(2) Secondly, the sliding-scale device is objected to on the ground that it leads to wider and more frequent fluctuations of wages than would otherwise occur;² and, as a fluctuating income cannot be as economically administered as a stable one of the same average amount, this results in a real loss of welfare to the wage-earners concerned.³ But, as has often been pointed out in dealing with this objection,⁴ it is essential

¹ *Report on Collective Agreements (1934)*, pp. 133, 136, 137, 174 and 204.

² *Cf. Industrial Negotiations and Agreements*, p. 47.

³ *Cf. S. J. Chapman, "Some Theoretical Objections to Sliding Scales"*, in *Economic Journal*, 1903, pp. 193, 194.

⁴ *E.g. L. L. Price, Industrial Peace*, pp. 79, 80; A. C. Pigou, *Economics of Welfare (1920)*, p. 621.

to distinguish between stability of wage rates and stability of earnings; it is the latter, obviously, which conduces to economical spending. For the worker who succeeds in working the normal hours of labour throughout all the fluctuations in his trade, stability of earnings requires stability of rates. But, for the trade as a whole, aggregate earnings are clearly the product of wage rates and the volume of employment; and, since fluctuating wage rates within a particular trade promote greater regularity of employment, it is conceivable that aggregate earnings may be more stable with fluctuating than with stable wage rates. This will be the case if the demand for labour in the particular trade is elastic, since wage reductions may keep up aggregate earnings in a period of bad trade, despite the fall in the demand for labour.

Where, however, the demand for labour is inelastic, fluctuating wage rates will cause aggregate earnings to vary within a wider range than if rates were kept constant. In this case the trade union is faced, in a period of falling demand, with the choice between accepting lower rates, which will reduce aggregate earnings but provide rather more men with employment, and maintaining rates, which will minimise the loss of aggregate earnings but cause more unemployment in the trade.

Now it can be argued (though, strictly speaking, economic analysis can throw no light on this problem) that it is better for a group as a whole that *all* its members should share equally in a smaller aggregate income, than that *some* of them should share in a larger income on condition that the remainder have no income at all. But this is hardly the kind of choice with which trade unions are confronted in practice. Those of

products. Hence a 10 per cent cut in wage rates might reduce by 2 per cent the prices of goods the demand for which is probably inelastic ; in these circumstances it seems reasonable to suppose the demand for labour in the heavy iron and steel industry to be inelastic.

(3) There is a further objection to sliding scales which has been raised by the trade union movement, and by the employers in the coal-mining industry, viz. that where sliding scales are in operation the men have an incentive to restrict output, either on their own initiative or in collaboration with the employers, in order to raise prices and, therefore, wages. There is a certain amount of evidence to support this view, but owing to our very limited experience of sliding scales it would be dangerous to generalise as to their influence on restrictionist schemes.

There is no doubt that the miners' unions looked with favour on the regulation of output when the sliding-scale system was in vogue. The Final Report of the Royal Commission on Labour, 1894, declared that "in the miners' views of political economy it seemed right to play when they chose, in order to send up the prices of coal, and therefore the wages relating to the prices of coal". In 1893, for instance, the Miners' Federation offered to establish a combination between the owners and the men, in order to maintain higher coal prices and prevent undercutting in the market.¹ The South Wales Miners' Federation urged a "limitation of the vend" on the owners in 1897, and a quota scheme was actually drawn up by the owners but abandoned through inadequate support.² "Stop-days" were frequently arranged to raise prices, until

¹ See J. R. Raynes, *Coal and Its Conflicts*, p. 62.

² *Ibid.*, pp. 88, 89.

heavy damages were awarded against the South Wales Federation in 1903 for inducing workmen to break their agreements on three stop-days.¹

In the so-called "Birmingham Alliance" a kind of sliding-scale agreement was associated with collaboration between employers and workers to regulate output and prices. This type of industrial combination was first adopted in the iron bedstead industry in 1890 and later extended to other branches of the metal trades in the Midlands. The distinctive feature of the scheme lay in the provision for calling a strike against any employer who failed to adhere to the agreed price-list. All the firms concerned agreed to employ only trade unionists, so that the Conciliation Board, with the co-operation of the trade union, could penalise any "black sheep" by calling out his workmen. To clinch the bargain a kind of sliding scale was drawn up, whereby wages fluctuated in direct proportion to profits; hence the more effectively the trade union backed up the scheme the higher wages rose. The Alliance broke down in 1900 through secret under-selling and the pressure of outside competition.²

Again, the operation of sliding scales may help to explain the fact that some of the trade union leaders in the iron and steel industry have for many years advocated a tariff as a means of protecting the standard of living of British steelworkers against the competition of cheap foreign labour, whereas the British trade union movement as a whole has never been much impressed with the case for protective tariffs.

But as against evidence of this kind, it must be

¹ *Ibid.*, pp. 98, 99.

² For an account of the Birmingham Alliance see J. A. Holman, *The Evolution of Modern Capitalism* (1917), pp. 171, 172.

admitted that any group of workers may realise that a policy restrictive of output will favour their sectional interests, whether their wages are regulated by a sliding scale or not. If they are producing a commodity with an inelastic demand, limitation of output is calculated to increase the gross proceeds from their produce, and wages are, therefore, likely to be higher. The policy of regulating output has always had an attraction for the miners, whether sliding scales were in existence or not.¹ They advocated it in the 1830's, for instance, when sliding scales were unknown;² and in 1913, when nearly all the scales had been abandoned, there was much discussion in the Miners' Federation and the International Miners' Federation of a proposal to regulate output by varying the number of days worked a week.³ In the post-war period the miners' unions have championed the principle of regulation ultimately embodied in the Coal Mines Act of 1930. Clearly, therefore, it cannot be contended that workmen have no incentive to restrict output except where selling-price sliding scales are in operation; but there is perhaps some justification for the view that such restrictive agreements are more likely to commend themselves to the men, if wages are deliberately made to depend on the level of selling prices.

¹ A. M. Neuman, *Economic Organisation of the Coal Industry*, pp. 182 *et seq.*

² Raynes, *op. cit.*, p. 29

³ *Ibid.*, p. 129.

CHAPTER VI

THE REGULATION OF WAGES BY PROCEEDS-SHARING

THE most interesting experiment in the automatic regulation of wages that has yet been tried is the scheme for sharing proceeds between owners and workers which the British coal-mining industry has adopted since 1921. Up to the establishment of Government control (1917), the general level of wage rates had been adjusted in each district mainly by reference to fluctuations in the selling price of coal. In the 1870's and 1880's these adjustments were commonly made by means of sliding scales, but, as has been explained in the preceding chapter, these gradually declined in popularity, so that by 1914 there were only two districts (Northumberland and the Forest of Dean) where sliding scales were still in operation. However, even after the sliding-scale system had been formally abandoned, selling prices continued to be the principal, though not the only, factor considered by the Conciliation Boards in negotiating general wage-changes. Variations in the cost of living and in costs of production were also sometimes taken into account.

During the period of Government control, with its regulation of coal prices and profits, wages ceased to follow the movements of prices; instead, flat-rate advances were conceded periodically to meet the increased cost of living, these advances being uniform

throughout all mining districts.¹ But when the industry was decontrolled, there was no question of reviving the old method of adjusting wages to ascertained price fluctuations ; both parties had serious objections to it. On the men's side it was urged that ascertained selling prices were a defective index of the wage-capacity of the industry, as they took no account of the quantity of coal sold. The men held that profits were a sounder basis for the adjustment of wages, and proposed that, for this purpose, average net profits should be periodically ascertained in the same way as selling prices.² The owners' main objection to the basing of wages on selling prices was that such a method induced the men to restrict output in order to keep up prices, or at least gave them no incentive to expand output.³ Accordingly, they wanted some scheme of wage regulation which would give the men a financial interest in the minimising of costs of production.

The genesis of the proceeds-sharing scheme later adopted by the industry is to be found in the proposals put before the Sankey Commission by Lord Gainford, on behalf of the Mining Association.⁴ He claimed for them the merit of giving the workmen for the first time a real interest in securing increased production. The main features of this proposed scheme were, briefly, as follows :

¹ For a detailed account of the course of miners' wages in the control period (1917-21) see G. D. H. Cole, *Labour in the Coalmining Industry* (Carnegie Endowment for International Peace).

² Evidence of Mr. William Straker (Secretary of the Northumberland Miners' Union) before the Coal Industry Commission of 1919, *Minutes of Evidence*, Q. 8198.

³ Evidence of Mr. Joseph Shaw before the Coal Industry Commission of 1919, *Minutes of Evidence*, Q. 23,807.

⁴ Evidence-in-chief before the Coal Industry Commission, *Minutes of Evidence*, p. 813. These proposals had been drawn up in 1916 by a committee of the Mining Association and then shelved.

(i) Independent accountants appointed by the two parties were to ascertain for each mining district the proceeds from the sale of coal, the ascertainment being made quarterly.

(ii) Certain items were to be charged up against these gross proceeds, viz. (a) the cost of the standard wages, (b) costs other than wages, and (c) a standard rate of profit per ton to provide a minimum return on capital. The rate of interest to be allowed on capital was to be decided by the accountants, and the amount of capital invested in the industry was to be calculated on a tonnage basis (*e.g.* 10s. or 15s. of capital to be assumed for each ton raised), the assessment of this item being left also to the accountants.

(iii) Any balance remaining after charging up these items against the gross proceeds was to be shared in agreed proportions between labour and capital, the men receiving their share in the form of a percentage addition to their standard wages.

(iv) If the proceeds were insufficient, after charging up wages and other costs, to pay the owners the standard rate of profit, the deficiency of profit was to be carried forward and recovered from any subsequent surpluses.

The chief difference between these tentative proposals and the agreement finally adopted after the stoppage of 1921 lies in the treatment of standard profits. The original proposal was that the accountants should estimate the amount of capital invested in the industry per ton of coal produced, decide what rate of interest on capital constituted a reasonable return (after taking into account the risks of the industry), and then calculate on these assumptions the amount of profit per ton which would yield this reasonable return.

Before the war it had been commonly assumed that 10s. worth of capital was invested for each ton of coal raised and that a net profit of 1s. a ton constituted a reasonable return. The rise in the price-level had, of course, upset the whole basis of these pre-war calculations, and the owners proposed, therefore, that independent accountants should investigate the post-war relationship between capital and tonnage in order to provide a new norm of profits.

This method of determining the "standard" profits of the industry is open to two serious objections. Firstly, no organised body of workers could be expected to accept the verdict of accountants, however impartial, on such a fundamental matter as the rate of return on capital which is to be regarded as normal and "fair"; this must necessarily be a matter for bargaining between the parties concerned. Secondly, as there are no clear and accepted principles whereby the amount of capital invested in an industry can be calculated, interminable controversy would be likely to arise over the principle to be adopted. Theoretically, the value of the immobilised capital sunk in an industry should be calculated by capitalising, at the current rate of interest, the anticipated net returns; such a method of valuation, however, is useless if the aim is to discover what is a "normal" profit, since it involves the assumption from the beginning of the very thing which it is sought to establish. Original capital expenditure, less allowances for depreciation, and, in the case of the mining industry, amortisation, would be rejected by the employers as a method of valuation if the price-level had moved appreciably upwards since the bulk of the original expenditure had been incurred. And the replacement cost of the existing

assets would be equally rejected by the workers as a basis if the price level had risen. The capitalisation costs per ton in newly developed mines would also be unacceptable to the men as a basis of valuation, as they could reasonably contend that up-to-date mechanised mines involved much heavier capital expenditure per ton raised than had been the case with the general run of older mines. Hence, it seems unlikely that agreement would easily have been reached on this essential element in the owners' original proposals.

Messrs. Sidney Webb and R. H. Tawney, members of the Coal Industry Commission, severely criticised these proposals for what the former described as "collective profit-sharing". There would be no check on the collieries charging excessive amounts in their expenditure on such items as directors' fees and managers' salaries, thus reducing unduly the surplus for division between capital and labour.¹ The proceeds of the industry might be artificially reduced through the colliery departments of integrated concerns selling coal at excessively low prices to other departments.² The men might find their share of the surplus attenuated through an excessive investment of capital, over which they had no control.³ They were particularly critical of the proposal to ensure the earning of certain "standard profits" by the recoupment of deficiencies; Professor Tawney suggested that the provision of a guaranteed minimum profit, without any compensating maximum, amounted to saying to the public, "Heads I win, tails you lose".⁴

After the national miners' strike of 1920 had ter-

¹ Coal Industry Commission, *Minutes of Evidence*, Qs. 20, 203-20, 215.

² *Ibid.*, Qs. 20, 249.

³ *Ibid.*, Qs. 20, 291-20, 305.

⁴ *Ibid.*, Qs. 20, 410.

minated with a temporary settlement, and while the industry was still under control, the coal-owners and men set up a joint committee to negotiate a permanent scheme for the regulation of wages. The "profit-sharing" scheme outlined before the Sankey Commission was revived and became, with certain modifications, the basis of the negotiations. The basic principles of the scheme were accepted by both parties: certain standard wages were to be calculated and established as a minimum; standard profits were to be a fixed proportion of the aggregate standard wages; any surplus remaining after charging up standard wages, standard profits and other costs, against the gross proceeds from the sale of coal was to be divided between wages and profits in a fixed ratio; and any deficiency of standard profits was to be carried forward and recovered in full from future surpluses before the men should be entitled to any advance above their standard.

There was naturally some disagreement about the precise ratios to be adopted in sharing out the proceeds and the surplus. The owners' proposals provided, broadly, that the standard wages should be the basis rates then existing at each colliery plus the percentage additions thereto which were payable in July, 1914; standard profits were to be 17 per cent of these standard wages, and the surplus was to be divided in the ratio of 75 per cent to the men and 25 per cent to the owners. The men, on the other hand, proposed that the new standard wages should be, roughly, the basis rates plus the various district percentage additions thereto prevailing in 1921, but excluding the flat-rate advances and the so-called "Sankey wage", awarded on the recommendation of the Coal Industry

Commission. Standard profits were to be 10 per cent of these standard wages, and the men were to take 90 per cent of the surplus.

The owners proposed a ratio of 17 : 100 between standard profits and standard wages because, according to Sir Josiah Stamp's calculations, that had been the average ratio between profits and wages in the coal-mining industry for the twenty years immediately preceding the war.¹ The men, on the other hand, calculated that 10 per cent on the aggregate wage bill of September, 1920, would give the owners a total profit of £23 million per annum, as compared with the £26 million which were guaranteed to them by the Government under the control scheme, and therefore claimed that their proposed 10 per cent ratio would give the owners a handsome return. The gap between the two proposals was, however, less than appeared at first sight, for the owners' proposed standard profit was 17 per cent of the wages prevailing in 1914, whereas the men's 10 per cent standard was calculated on a considerably higher wage-level.

When the industry was prematurely decontrolled (on April 1st, 1921, five months before it had been expected), the negotiations broke down and a stoppage resulted, not through any failure to agree on the principles of wage determination, but through a fundamental clash over the question of the proposed National Wages Board and the national profits pool. The miners proposed that the national settlement of wage questions and the partial pooling of profits which had characterised the period of Government control should be continued when the industry reverted to

¹ Evidence of Sir Josiah Stamp before the Coal Commission of 1925, *Minutes of Evidence*, p. 263.

private control; the owners, on the other hand, insisted that the industry would have to return to the pre-war practice of settling wages on a purely district basis.

THE AGREEMENT OF 1921

After a stoppage lasting three months, an agreement was reached in July, embodying the principles of proceeds-sharing on an industrial basis. The agreement was heralded as a magnificent contribution to the cause of industrial peace. Mr. Lloyd George eulogised it in the House of Commons in the following terms: "I am very glad indeed to say now that an arrangement has been made which, I think, will ensure peace for a very long period in the coalfields, and not only will it ensure peace, but I think it will ensure it on a very satisfactory basis. . . . I believe that no such large and scientific application of the theory of profit-sharing has ever before taken place in the history of any industry in any country, and certainly not in this country."¹ The miners themselves felt that the agreement was a landmark in the history of the industry. In a circular addressed to the members of the Miners' Federation in July, 1921, the Executive declared that the principles of the agreement marked an entirely new departure in the mining industry, and expressed the belief that when anything like normal trade returned these principles would provide a more just method of fixing wages and profits than they had ever had before in the industry.² Mr. (later Sir) Evan Williams, chairman of the Mining Association, described the scheme

¹ Cited by W. A. Lee in his evidence before the Coal Commission of 1925, *Minutes of Evidence*, p. 302.

² Miners' Federation of Great Britain, *Annual Volume of Proceedings for 1921*, p. 401.

as "the greatest advance yet made in the direction of identifying the worker's interest with that of the employer".¹

The agreement thus reached was essentially a compromise between the original claims of the owners and the men. The *principles* whereby the wage-capacity of the industry was to be determined were agreed upon between *national* organisations of the two parties, and were uniformly applied throughout the whole industry. But it was the wage-capacity of the individual mining *district*, as determined by these national principles, which regulated wages within each district.

The main features of the 1921 agreement (excluding the provisions for the "temporary period" up to September 30th 1921) were as follows :

(1) The wages payable in each district were to be expressed as a percentage on the basis rates prevailing in the district, and were to be adjusted periodically according to the proceeds of the district, as ascertained by the independent accountants appointed by each side.

(2) The sum to be applied to the payment of wages above the standard was to be 83 per cent of the surplus remaining after deducting from the proceeds of the district :

- (a) The cost of the standard wages ;
- (b) The costs of production other than wages ;
- (c) Standard profits equivalent to 17 per cent of the cost of the standard wages.

The workers' share in this surplus was to be expressed as a percentage upon the basis rates of the district.

¹ *Industrial Year Book*, 1922, cited in A. G. B. Fisher, *Wages and their Regulation in Great Britain*, p. 257.

(3) The standard wages were to be the basis rates prevailing in each district on March 31st, 1921, plus the percentage additions thereto which were payable in July, 1914 (or the equivalent of this in districts which had set up new standards after this date). The percentage additions to piece rates which had been made in 1919 to compensate for the reduction of hours from eight to seven, were to be included in the standard wages.

(4) If the ascertained proceeds in any period, after deducting costs other than wages and the costs of the standard wages, were insufficient to meet the standard profits, the deficiency was to be carried forward as a first charge on any surplus arising in any subsequent period.

(5) The minimum wage rates in all districts were to be standard wages plus 20 per cent. Further, if the actual wage rates determined in any district did not provide a subsistence wage to low-paid day-wage workers, subsistence allowances were to be paid, the amount of these being fixed by the District Board, or in the event of disagreement by the Board, by its independent chairman. Any such allowances were to be treated as items of cost in the district ascertainment.

(6) The machinery of wage negotiation was to consist of a National Board, composed of equal numbers of persons appointed by the Mining Association and the Miners' Federation, with an Independent Chairman; this body was to decide the periods of the ascertainment and the items to be charged up as "costs of production other than wages". In addition each of the thirteen districts had its own board and independent chairman.

Difficulties of interpretation.—It soon became evident that the agreement had been hastily, not to say carelessly, drawn up, and the National Board and its Independent Chairman, Sir William (later Lord) Plender, were kept very busy interpreting its provisions. The written agreement contained no definition of the all-important item, "proceeds of the industry". The men claimed that this should be interpreted to include the receipts from the various subsidiary activities undertaken by many collieries, as well as the receipts from coal-mining proper. The question was submitted to the Independent Chairman, who decided that the accountants must exclude from the ascertainment the receipts from coke ovens and by-product plants, smokeless-fuel plants, the manufacture of patent fuel, selling agencies and merchanting depôts, wagons, ships and barges, private railways (as distinct from colliery sidings), farms and cottages, washeries and electric power plant (except those situated at and owned by the collieries).

Any coal passing from a colliery to one of these subsidiary undertakings was to be valued for purposes of the ascertainment at fair transfer prices. The award was accepted by the men, but the exclusion of these various ancillary receipts (which has been repeated in all subsequent agreements) has now become a prime cause of dissatisfaction, on the part of the men, with the system of wage ascertainment.

Again, it was not clear from the wording of the agreement whether a recoverable deficiency of profits was to include any payments which the owners had to make in order to bring wages up to the agreed minimum of 20 per cent above the standard. The Independent Chairman ruled that the agreement did

not provide for the inclusion of such additions to wages in the recoverable deficiencies. Hence the profits actually received by the owners might fall below the standard profits by an amount equal to 20 per cent of the standard wages, but such a deficiency could never be recouped. It was certainly not the intention of the owners that such deficiencies should be excluded from the "recoupment clause", for they had hammered out the scheme on the principle that the owners should be guaranteed certain standard profits in the long run. Accordingly, the revised mining agreement of 1924 made it perfectly clear that any deficiency of standard profit after deducting from the proceeds (a) the cost of the minimum wages (not standard), and (b) costs of production other than wages, should be recouped from future surpluses.

A few difficulties arose over the interpretation of "standard wages". The Independent Chairman had to decide whether the remuneration of clerical and administrative staffs, privileges in the form of coal or houses free or at reduced rates, and wages included in capital expenditure, should be included in "standard wages"; he ruled that none of these items should be included.

Finally, as had been anticipated at the time the agreement was drawn up, the item "costs of production other than wages" presented the accountants with a number of technical problems, many of which were submitted to the Independent Chairman. He decided, for instance, that the following *should* be included in these costs: national insurance contributions, the remuneration of owner-managers at a fair figure, the cost of restoring the surface at the end of a lease, damage to the surface belonging to mine-owners in so

far as it is made good by actual expenditure, and costs incurred at collieries temporarily closed. On the other hand, he excluded from "costs other than wages" such items as income tax and corporation profits tax, contributions to trade associations, consequential loss insurance premiums, amortisation of capital expenditure (except so far as it is included in income tax allowances for depreciation) and interest on capital and loans (whether debentures or other fixed loans or bank overdrafts). Interest charges were excluded so as to avoid any differential treatment of collieries working with borrowed capital and those not so working.

THE AGREEMENT OF 1924

In January, 1924, the Miners' Federation gave notice to terminate the agreement with the object of securing more favourable terms, which, in their opinion, the industry could now stand. Coal exports in 1923 had reached the figure of 102,800,000 tons, the highest on record, owing to the temporary stimulus of the Ruhr occupation, and profits had worked out at the comparatively handsome figure of just under 2s. a ton. The owners contended that this abnormal period of prosperity had already ended, but nevertheless entered into a new agreement in June, 1924, which gave the men considerably better terms.

The agreement of 1924 was much more carefully drafted than its predecessor and included detailed schedules covering the technical questions arising in connection with the ascertainment. The principal changes made were as follows:

(1) *The ratio between standard profits and standard wages was reduced from 17 to 15 per cent.*

(2) The men's share in any surplus was increased from 83 to 88 per cent.

(3) The subsistence allowances which had been fixed by the District Boards under the 1921 agreement were to be increased by one-eighth.

(4) In no district were wages to fall below a figure 40 per cent above the standard wages of the lowest-paid class of day-wage workmen.

(5) The minimum wage rates were to be $33\frac{1}{2}$ per cent above the standard, as compared with 20 per cent in the 1921 agreement. This subsequently proved to be the only significant gain secured by the men.

(6) The new agreement also modified the provisions for the recoupment of deficiencies. If in any period the ascertained proceeds were less than the sum of (i) costs other than wages, (ii) the cost of the minimum wages and (iii) standard profits, the deficiency was to be carried forward. But a limit was placed on the proportion of any subsequent surplus which could be applied to making good deficiencies. "In any ascertainment in which the amount of the proceeds is greater than the amount required to meet (1) costs other than wages, (2) the cost of the minimum wages as defined in Clause 5, (3) standard profits and (4) an amount equal to $\frac{1}{15}$ ths of the difference between the cost of standard wages and minimum wages as defined in Clause 5, one-third of the balance shall be applied, so far as may be necessary, to make up any deficiency brought forward from previous ascertainments. The other two-thirds, together with such portion of the first third as may remain after the deficiency brought forward has been met, shall be divided between wages and profits in the proportions of 88 per cent to wages and 12 per cent to profits."

WAGE NEGOTIATIONS IN 1925-26

In the latter part of 1924 and the beginning of 1925 the forces of depression which, in the words of Mr. (later Sir) E. A. Gowers, had been lying in wait for the coal-mining industry since the end of 1920 but had been warded off by a series of accidents,¹ made a concentrated attack on the industry. Wage rates in all districts but five, viz. Scotland, Northumberland, Durham, the Eastern District (covering Yorkshire, Nottinghamshire, Derbyshire, Leicestershire, Cannock Chase and Warwickshire) and the Radstock District of Somerset, were at their minimum of 33½ per cent above standard from the beginning of the 1924 agreement; by September, 1924, the first three of these five had fallen to the minimum, the Eastern District remaining above it until July, 1925, and the Radstock District until November, 1925. Coal exports declined sharply and prices fell, with the result that the industry incurred a loss of 0·17 shilling per ton in the first half of 1925. Accordingly, the owners gave notice in July, 1925 to terminate the agreement, with a view to securing reductions in their wage costs.

The owners' proposals involved a radical modification of the principles of the preceding agreements. The balance of the proceeds after deducting costs of production other than wages, was to be divided between wages and profits in the proportion of 87:13; the men's share, after deducting any special subsistence allowances, was to be expressed as a percentage on their base rates. The minimum percentage addition to basis rates, which had proved in practice to be the vital parts

¹ Coal Commission (1925), *Minutes of Evidence*, p. 4.

of the agreements of 1921 and 1924, was to be eliminated; minima in the form of subsistence allowances to low-paid day-wage workers were to be retained. Such a scheme implied that as long as the proceeds of the industry enabled any wages at all to be paid, the owners as a whole would continue to draw some profits, since there were no minimum wages payable as a first charge on the proceeds. It put wages and profits on precisely the same footing as equal sharers in all the fluctuations of the industry.

The men rejected these proposals and a stoppage was imminent. To meet the crisis the Government set up a Court of Inquiry, under the chairmanship of the Right Honourable H. P. (later Lord) Macmillan. Subsequently the Samuel Commission was appointed, and while it conducted its investigations a subsidy was paid to the owners for nine months, in order to bridge the gap between the wages payable under the owners' proposals and those payable under the 1924 agreement.

The Commission discussed the problem of wage determination at considerable length in their Report. They considered that the basic principles of the agreements of 1921 and 1924 were sound, but suggested certain minor amendments, especially in the matter of transfer prices, mainly with the object of securing the complete confidence of the men in the fairness of the wage ascertainties. (These proposed amendments are considered below.) They expressed themselves as "strongly of the opinion that national wage agreements should continue". They recommended that, in order to give the men a direct interest in output and in the financial results of the individual colliery employing them, payment by results should be extended and

profit-sharing schemes should be generally adopted and made obligatory by statute. They advocated also the introduction of a family allowance system, either on a national or a district basis. Of the alternative methods of reducing wage costs, the need for which was primarily responsible for the dispute, viz. longer hours or lower wages, they much preferred the latter, and stated that the minimum percentage additions to standard wages would have to be reduced to meet the needs of the immediate situation. The amount of this reduction, however, was a matter for negotiation between the owners and the men. In addition, of course, they recommended a variety of measures which were calculated to improve the long-term wage-capacity of the industry, such as nationalisation of royalties, amalgamations, co-operative selling agencies, etc., a discussion of which is outside the scope of this study.

But despite the thorough investigations of the Commission, no settlement was reached and the disastrous stoppage of 1926 ensued. The result of the struggle, so far as the method of wage adjustment was concerned, was to remove all semblance of a national agreement. When the men returned to work in November, negotiations were opened with the owners in the districts, and all the new agreements were made independently on a district basis. In an attempt to secure some degree of uniformity, the Executive of the Miners' Federation formulated certain general principles for the guidance of the district associations in their negotiations with the owners. These were, briefly, (a) that the principles of the 1924 agreement were to be adopted ; (b) the surplus was to be divided between wages and profits in the proportion 83 : 17 ; (c) the minimum percentage addition to standard wages was to be at

least 20 ; and (d) subsistence allowances were to be continued for the lower-paid men. They were not completely successfully in achieving uniformity, but there is, nevertheless, a broad similarity between the district agreements in that they are all based on the principles of proceeds-sharing. The main features of the present district agreements are summarised in the table on pp. 208 and 209.

THE PRESENT DISTRICT AGREEMENTS

Certain characteristics of these district agreements should be noted. In the first place, the agreements in all districts except Lancashire and Cheshire and the Forest of Dean have simplified the division of the proceeds by eliminating the ratio between "standard wages" and "standard profits". Under the 1924 settlement, it will be remembered, "standard wages", "costs other than wages" and "standard profits" (equal to 15 per cent of the standard wages) were first deducted from the gross proceeds. Any surplus remaining was then divided in the ratio 88 : 12 between wages and profits. Now, only "costs of production other than wages" are first charged up against the proceeds and the surplus remaining is then divided between men and owners in the ratio shown in column 3, subject to the provision that wages must not be below the minima set out in column 4. A deficiency arises when the men's share of this surplus is insufficient to pay these minimum rates.

The ratio between wages and profits most commonly adopted is 85 : 15, which makes profits equal to 17·6 per cent of wages, a figure slightly higher than that obtaining under the earlier agreements ; in three districts

the ratio is 87 : 13, in one 86 : 14 and in one 84 : 16.

The uniform percentage increase over "standard wages" (i.e. rates prevailing in July, 1914) which characterised the agreements of 1921 and 1924 has disappeared. The changes since 1914 in the minimum district rates range from a decrease of $6\frac{2}{3}$ per cent in Northumberland to an increase of 30 per cent in Warwickshire.

As to the recovery of deficiencies, in most districts the agreements provide that they shall be carried forward and made good out of any subsequent surplus ; but in several cases there are interesting modifications, either by the imposition of a time limit to the recoverability of deficiencies (in seven districts), or by limiting the proportion of any surplus which can be applied for recoupment, on the lines of the 1924 agreement (in four districts).

THE BASIC PRINCIPLES OF PROCEEDS-SHARING

We turn now to a discussion of the principles underlying these proceeds-sharing schemes. Like most selling-price sliding scales they attempt to combine two distinct principles of wage regulation—the principle of the minimum wage and the principle of paying " what the trade will bear ". They provide, in the words of the Royal Commission of 1925, for the payment of both a " minimum wage " and an " economic wage " ;¹ wages are made to fluctuate with the ascertained prosperity of the industry, but with the proviso that however depressed the industry may be, a certain prescribed level of minimum wages shall be a first charge on the proceeds of the industry.

¹ *Report*, p. 134.

DISTRICT WAGE AGREEMENTS, 1936¹

District	Basic Rates fixed in Year	Ratio of Wages to Profits	Minimum Percentage Addition to Basic Rates	Period of Ascertainment	Treatment of Deficiencies
Northumberland	1870	87 : 13	40	1 month	Carried forward
Durham	1879	87 : 13	65	1 "	" "
Cumberland	1915	85 : 15	22.5	1 "	" "
Lancashire and Cheshire	1911	Standard 87 : 13 ; Surplus 80 : 14 85 : 15	32	3 months	Cancelled at the end of April in each year
South Yorkshire	1911		32	1 month	50 per cent of any surplus to be applied for recoupment, but outstanding deficiency to be cancelled at the end of April each year
West Yorkshire	1911	85 : 15	Below ground 32 : Above ground : Eastern sub-division 30-33 ; Western sub-division 27	1 "	50 per cent of any surplus to be applied for recoupment, but outstanding deficiency to be cancelled at the end of April each year
Nottinghamshire	1911	85 : 15		3 months	Cancelled at the end of April in each year
North Derbyshire	1911	85 : 15	38	3 "	Cancelled at the end of April in each year

	1911	85 : 15	29 (Engineers, firemen and mechanics, 35 ; Boys 14-17, 45 ; Boys 17-17½, 40 ; Boys 17½-21, 35) 37	3 months	Carried forward, 40 per cent of any surplus to be applied for recoupment. Of the remainder of such surplus, 85 per cent is applied to wages until the percentage payable on basis rates reaches 40, after which 50 per cent of any remaining surplus is applied to wages One-third carried forward, and one-third of any surplus to be applied for recoupment Carried forward, 40 per cent of any surplus to be applied for recoupment. Of the remainder of such surplus, 85 per cent is applied to wages until the percentage payable on basis rates reaches 45, after which 50 per cent of any remaining surplus is applied to wages Cancelled at end of March each year Carried forward, but not beyond 12 months Carried forward
South Derbyshire	1911	85 : 15		3	
North Stafford- shire	1911	80 : 14		3	
Cannock Chase	1911	85 : 15		2	
Leicestershire	1911	85 : 15		12	
Warwickshire	1911	85 : 15		12	
Forest of Dean	1919	Standard 100 : 15 ; Surplus 85 : 15		3	
Kent	1911	Ratio pro- portioned in accord- ance with agreed formula 85 : 15	Lower-paid men 37 ; others 32	3	Carried forward, but one-eighth of the total deficiency cancelled at the end of each quarter
South Wales and Monmouthshire	1915	85 : 15	25	3	Carried forward, one-third of any surplus to be applied for recoupment
North Wales	1911	84 : 16	22	3	Carried forward
Scotland	1888	85 : 15	100	2	" "

¹ Compiled mainly from data in the *15th Annual Report of the Secretary for Mines* (1936).

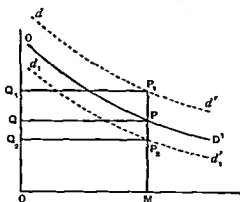
(1) *The compatibility of "minimum wages" and "economic wages".*—Is it possible for these principles to work in harness together, the minimum wage prevailing at the bottom of a depression and the economic wage at other times? Or must the economic wage, the wage the industry can bear, inevitably fall at all times to the level of the minimum? If the minimum must necessarily establish itself also as the maximum, all the complicated arrangements for ascertaining the profitability of the industry are, of course, simply superfluous. On this question there has naturally been some divergence of opinion within the mining industry in the difficult post-war years. The men have inclined to the view that wages are the main determinant of coal prices, and that if wages are fixed at a low level competition will establish a correspondingly low level of coal prices; in other words, whether the wage-capacity of the industry is high or low depends primarily on whether wages are high or low. The owners, on the other hand, have contended that the size of the industry's proceeds does not depend on the level of wages, for the collieries will in any case charge the best prices they can get, whether wages are high or low; they therefore see no illogicality in making wages depend on proceeds.

(i) Each of these views as to the relationship between wages and prices in a particular industry is sound in different sets of circumstances. The apparent clash between them is due to the fact that they are derived from different assumptions. If we assume that entrepreneurs maintain a constant output, whatever the conditions of demand, then clearly the price is determined independently of the level of wages, and

so also are the proceeds of the industry.¹ Now, those colliery companies producing for the general market and selling their output at whatever happens to be the market price are, in the very short period, in this position. They may find that the price they can get for this given output barely covers its prime costs, or, on the other hand, it may yield a comfortable margin of gross profit; but, for the time being, the market price depends on the demand price for the output which the competing firms have between them put on the market.

(ii) But clearly the collieries in this position will not maintain a given output for long, if they find that the price they can get for it does not cover its marginal prime cost; they will curtail output until the price has risen and the marginal prime cost fallen sufficiently to equalise the two. Similarly, if they find that the market

¹ If, in the adjoining diagram, the output of coal is assumed to be maintained at OM tons, then when the demand is represented by DD'

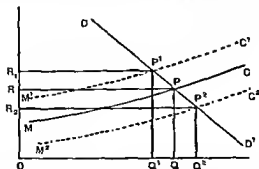


the price will be PM and the proceeds of the industry OMPQ. An improvement of demand to dd' would raise the price to P_1M and the proceeds to OMP_1Q_1 ; a fall in demand to $d_1d'_1$ would lower the price to P_2M and the proceeds to OMP_2Q_2 .

price exceeds their marginal prime costs, they can secure additional profits by expanding their output; and this they will do until marginal cost and price are once more in equilibrium. Now, as wages are the principal ingredient of prime costs, their level must be, except in the very short period, one of the factors determining the magnitude of the equilibrium output, and, therefore, the proceeds of the industry. If wage rates are raised, the increase in marginal costs will, given the conditions of demand, cause output to contract; if, as is probably the case, the demand for coal has an elasticity of less than unity, this will increase the gross proceeds of the industry.¹

(iii) The influence of the level of wages on the gross proceeds of the mining industry has been strikingly illustrated on at least two occasions since the war. The subsidy of 1925-26, which in effect enabled the owners to lower their wage costs without any cutting of the

¹ Let DD^1 be the demand curve and MC be the curve of marginal prime costs. The equilibrium output will be OQ , sold at price PQ and



yielding proceeds $OQPR$. If, owing to an increase in wage rates, the marginal cost curve rises to MC^1 , output will fall to OQ^1 , price will rise to P^1Q^1 , and, thanks to the inelastic demand, proceeds will increase to $OQ^1P^1R_1$. Conversely, if wages are reduced, price will drop to P^2Q^2 and proceeds will shrink to $OQ^2P^2R_2$.

wages actually received by the men, induced them to sell coal at "prices which, without a subsidy and without a minimum, would have given the men in December, 1925, money wages barely above the level of 1914, if not actually below it".¹ More recently, in January, 1936, the cost of wage increases was passed on to consumers in the form of higher prices in a most obvious manner. In response to the miners' demand for an increase of 2s. a day, the various district owners made wage concessions ranging from 5d. to 1s. a day, the increase in the wage bill for the industry as a whole being estimated at £6 million a year. The funds to meet this additional expenditure were raised by charging higher prices, the retail price of household coal being advanced generally by about 2s. a ton; a large number of industrial consumers, protected under long-term contracts, voluntarily agreed to pay increases of 1s. a ton, the principal exceptions being the railway companies. It has been estimated that the proceeds of the mining industry were augmented in consequence by about £6½ million.² This recent illustration of the close connection between wages and prices cannot but confirm the miners in their view that consumers have been obtaining their coal at uneconomically low prices at the expense of miners' wages.

(iv) It is thus possible for both these antithetical views to be correct since they are based on different hypotheses. Those who contend that wages must be adjusted to proceeds tacitly assume output to be given, and emphasise the fact that if the demand for coal rises, a given output can be sold at a higher price and

¹ *Report of the Coal Commission* (1925), p. 147.

² PEP, *Report on the British Coal Industry*, p. 186.

yield larger proceeds, on the strength of which wage rates can be raised ; if the demand falls proceeds will shrink, and, again assuming the maintenance of a given output, wage-earners must be prepared to accept reductions. Those who urge that the magnitude of the proceeds depends on the level of wage rates, are tacitly assuming the conditions of demand to be given, and draw attention to the fact that when the given demand is inelastic, proceeds can be increased by raising wages (though this must involve some slight fall in output and employment).

There is therefore room for both a "minimum wage" and an "economic wage" in a proceeds-sharing agreement. In a period of falling demand wage rates under such a scheme will naturally gravitate towards the "minimum", the existence of which checks the fall in price but causes output and employment in the industry to contract rather more than would otherwise have been the case. When the demand is rising, the proceeds yielded by a given output will expand and a proceeds-sharing scheme will cause wage rates to rise above the minimum ; but again, the rise in wages will prevent output and employment from expanding as much as they would otherwise have done.

(v) But the distinction between an "economic wage", fluctuating with the prosperity of an industry, and a "minimum wage", has not always been kept in sight in the mining industry. In 1924, for instance, when the industry, especially on the export side, had been doing comparatively well, the men secured a new agreement giving them a higher level of minimum rates. When this temporary prosperity ended there followed a protracted struggle to get the minimum wages back to their former level. The men argued, in

effect, in 1924 that the industry could bear higher minimum wages than were payable under the 1921 agreement; the owners then urged, in 1925, that the industry could not bear the higher minima provided in the 1924 agreement. Whereas, if the basic principles of proceeds-sharing had been adhered to throughout, the *minimum* rates would have remained unaltered, and the fluctuation in the *economic* wage that the industry could bear would have been met by varying the margins above these constant minima.

(2) *The determination of the minimum wage.*—But if the minimum wage is not to fluctuate with the economic condition of the industry, as should certainly be the intention of a proceeds-sharing agreement, on what is it to be based? The lack of any clear understanding by either party as to the basis of these minimum rates accounts in part for the blurring of the distinction between the minimum wage and the economic wage in the mining industry. The Samuel Commission defined the minimum wage thus: "It represents either the assumed bare needs for subsistence or some standard of living which, having once been won, should not in the view of the men be abandoned, even at the cost of reducing the scale of the industry and the numbers that can be employed."¹

This, though a good enough definition of what the minimum wage should be in an ideal agreement, would hardly appear to be a satisfactory description of the minimum rates provided in, say, the mining agreement of 1921. They were certainly not intended to guarantee the miners a wage which would cover the cost of a bare subsistence. Low-paid workers, whose wages might put them below some "minimum needs

¹ *Report*, p. 131.

standard", as interpreted by the district boards, were entitled to "subsistence allowances"; but the minimum rates of 20 per cent above standard were applicable to all workers, skilled and unskilled alike, and certainly had no relation to any assumed standard of needs.

Neither could they be considered to represent some accustomed standard of living below which the men were not prepared to go. At the time the 1921 agreement was signed, the cost-of-living index showed a 119 per cent increase over July, 1914, so that the minimum rates of 20 per cent above July, 1914, would result in real wage rates about 45 per cent below the pre-war level. Such minima were necessarily much below the miners' customary standards of living and below the level which they considered should be the irreducible minimum. But they were the best terms the men could extract from the owners after a three months' strike; the owners could not, in their own opinion, commit themselves to a higher minimum in view of the depressed condition of the industry, following decontrol. Hence it was only to be expected that the miners would take the first favourable opportunity of getting the minima up to what they regarded as a more reasonable level.

In short, the mining industry has, since 1921, with the brief exception of the period of the Ruhr occupation, been in a position in which the maximum rates which the owners considered the industry could bear have been well below the minima which the men considered would give them a reasonable standard of living. The distinction between a minimum wage based in some general way on *customary standards* of living, and an economic wage based on the economic

condition of the industry, has been a mere theoretical abstraction with no counterpart in reality; the actual minimum rates have, perforce, had to be based on what the industry could bear. Hence, much as one can sympathise with the plea of the Samuel Commission that "the distinction between the economic wage and the minimum wage . . . is one which it is essential to re-establish and maintain",¹ it is difficult to see how, in the depressed condition of the mining industry, this could have been done. Wage rates inevitably moved to whatever minima were fixed, so that the minima naturally came to be regarded by both parties as the main subject of negotiation whenever circumstances seemed to indicate a change, in either direction, in the wage rates the industry could bear.

It is unfortunate that this first experiment in proceeds-sharing should have been tried in an industry confronted with the necessity of adapting itself to what is generally admitted to be a permanent shrinkage in demand. The distinction between a minimum wage based on the lowest standard of living acceptable to the men, and an economic wage normally fluctuating above the minimum, has been lost from sight, so that the arrangements for sharing surpluses have, for the most part, been a dead letter. But there is no reason why such a distinction should not be maintained if this method of wage adjustment were tried in an industry liable to the usual short-period fluctuations, but not burdened with a productive capacity which is excessive in relation to any foreseeable demand.

It should, perhaps, be pointed out that although these minimum rates, in an ideal agreement, should not be continually modified in the light of short-period

¹ *Report*, p. 148.

fluctuations, this does not mean that they should never be varied. In a progressive community the standards which each class will come to regard as the irreducible minimum will necessarily rise; and this should be reflected in a corresponding adjustment (at fairly long intervals of not less than, say, ten years) of the minimum rates provided under these agreements. But the only short-period alterations of these minima which are consistent with the intentions of such agreements are those which are made to compensate for fluctuations in the purchasing power of money. The minima might, in fact, be regulated by means of a cost-of-living sliding scale, leaving the additions to the minima to be adjusted according to the ascertained net proceeds of the industry. Such an arrangement would help to prevent the minimum *real* wage from rising to the level of the economic wage through a fall in the general price-level due to monetary causes. It would serve also to emphasise the distinction between the economic wage, varying in the short run with the prosperity of the industry, and the minimum wage, varying, in the short run, only with the cost of living.¹

(3) *Net proceeds as an index of wage-capacity.*—The present method of calculating the wage rates which each mining district is capable of paying is a vast improvement on the old selling-price sliding scales. By ascertaining the net funds available for division between labour and capital and then sharing them in a fixed ratio, it ensures that aggregate wages and aggregate profits shall move together (apart, that is to say,

¹ In 1923 the Miners' Federation promoted, abortively, a Coal Mines (Minimum Wage) Amendment Bill which proposed to increase the legal minimum wages fixed under the Act of 1912 by 76 per cent, the increase in the cost of living since 1914. Thereafter these minima were to vary automatically with the cost-of-living index.

from the necessity of paying the prescribed minimum wages). A selling-price sliding scale, on the other hand, may quite easily cause wages and profits to move in opposite directions; improvements in organisation or technique, resulting in lower costs and lower prices, will lower aggregate wages while possibly increasing aggregate profits. Conversely, increased costs, by raising selling prices, will augment wages while reducing profits. Again, if an industry with a highly elastic supply sells an increased output at unincreased prices, wage rates, under a sliding scale, will remain constant, despite the expansion of profits.

Under a proceeds-sharing agreement none of these defects arise; any reduction in costs other than wages, through technical improvements, enlarges the net proceeds, other things being equal, and so raises wages and profits together; an increase in the prices of the raw materials used reduces the net proceeds so that wages fall with profits; increased sales at unchanged prices increase the net proceeds and so benefit wage-earners as well as employers.

(4) *Proceeds-sharing as an incentive to efficiency.*—

It has been claimed also that the new method of adjusting wages in the mining industry is superior to the old sliding-scale system in that it gives the workers an incentive to increase production, whereas formerly the men were likely to restrict production in order to raise selling prices. In fact, on the owners' side, this consideration appears to have provided the main motive for introducing the proceeds-sharing scheme. It seems very doubtful, however, whether this claim can be substantiated. To the individual miner the knowledge that if he, along with scores of thousands of other miners in his district, works harder, and if the

managements are efficient, and if the coal can be sold at a good price, he may secure a somewhat higher wage, provides an exceedingly feeble incentive. There are far too many factors which may render futile his greatest efforts. In any case his individual share in the possible fruits of his extra efforts is infinitesimally small. In view of these considerations it is difficult to understand how the original supporters of the scheme could have harboured such optimistic views as to its effects on the output per man employed; such views, as Dr. Bowie has pointed out, were at variance with all our experience of profit-sharing schemes.¹

An organised restriction of output, if such a concerted policy could be successfully arranged by the men, would in fact pay the miners just as well under a proceeds-sharing scheme as when wages were regulated by selling prices. In view of the inelasticity of the demand for coal at the present level of coal prices, any curtailment of supply is calculated to enlarge the gross proceeds of the industry, and, since costs other than wages will be reduced somewhat, net proceeds will also increase. Whether such a restriction of supply results in a smaller number of workers earning considerably higher wages, or an increased number of workers doing less work each for slightly higher or no higher wages, depends, of course, on whether it is organised by the owners or the men.

(5) *The basing of wages on the capacity of the average colliery.*—Under the proceeds-sharing scheme the economic wage is necessarily based on what the average

¹ "A New Method of Wage Adjustment in the Light of the Recent History of Wage Methods in the British Coal Industry", in *Economic Journal*, 1927, p. 392. See also the same writer's "Profit-sharing and Co-partnership", in *Economic Journal*, 1922, p. 466.

colliery can afford to pay (it being assumed, for purposes of the agreement, that the average colliery must secure, taking the average of good and bad years, profits constituting approximately the same proportion of wages as before the war). The proceeds and costs other than wages of all the collieries in the district are aggregated, and the men's share in the net district proceeds is then expressed as a uniform percentage addition to basis rates, which is payable by every colliery, whatever its individual financial position happens to be. The result is, naturally, that those collieries which are working under adverse natural conditions, or which receive lower prices than the average for the district, or which are inefficiently managed or suffering from some other disadvantage, must fail, in the long run, to secure profits at the assumed normal rate. They will be balanced by other collieries working, for one reason or another, under more favourable conditions than the average and reaping, in the long run, more than normal profits.

Is this an economically sound method of assessing the wage-capacity of an industry? We saw in the first chapter good reason to question the desirability of such a method of wage regulation. It must, in the long run, tend to eliminate from an industry all those firms whose costs per ton are above the average. Theoretically, as the withdrawal of each less efficient firm would tend to raise the wage which the remaining firms could afford to pay, the process of elimination might continue until only a single firm, or a group of firms with equal wage-capacities, survived.¹ Now, in the special post-war circumstances of the British coal-mining industry,

¹ Cf. W. A. Lee's evidence before the Samuel Commission, *Minutes of Evidence*, Q. 16,030.

it has doubtless been desirable to encourage the closing down of the pits with the highest costs per ton, since the industry has had to contract its productive capacity to meet a curtailment of demand. Hence, this particular consequence of the system of wage adjustment in the coal industry has, for the time being, met with approval.

In fact, the Samuel Commission recommended that the process of eliminating "uneconomic" pits should be hastened by excluding their returns from the ascertainment and basing district wage rates on what the more efficient collieries could afford to pay. "For a number of reasons," they stated, "it is well worthy of consideration whether there should not be some exclusion from the wage ascertainment of those classes of mines which, as a whole, are unsuccessful; this means that they would have to pay the district wages, but that their working results would not be taken into account in fixing the wages. The wage rate for the district should be set by the most efficient employers in it; not be depressed by the least efficient. The result might be to hasten a little, as it is desirable to hasten, the closing of uneconomic mines. It would no doubt be a difficult matter to pick and choose between mines and exclude directly on the ground of inefficiency; the best-managed mines make a loss at times through special circumstances. A simple exclusion by size—say of all the 300 undertakings having an output of less than 200,000 tons a year—would serve all practical purposes, and would greatly diminish the labour and cost of making the ascertainment."¹

But is the steady elimination of all firms operating less economically than the average desirable as a

¹ *Report*, p. 143.

permanent feature of an industry? Theoretically, so long as the more efficient firms are operating below their optimum size it is desirable to continue to apply wage pressure to the less efficient in order to force them out of the industry; the output they would have produced will then be transferred to the remaining firms and bring them nearer to the point of maximum efficiency. And if the most efficient single firm in the industry cannot attain its optimum size until it is in a monopolistic position and selling at a price lower than the minimum costs of any other firm, the process of elimination should, so far as purely economic considerations are concerned, be allowed to continue until this logical result is achieved.

It cannot, however, be argued that this condition is likely to be fulfilled in the coal industry. For geological, if for no other, reasons, costs per ton must vary widely from pit to pit; and as the most economical pits, even when operating on their optimum scale, cannot supply more than a small fraction of the total amount demanded, we have no option but to extend mining operations to pits which are less economical than the best. Under such conditions, a wages system which progressively eliminated all pits less economical than the average would have the effect of curtailing the supply and raising the price of coal, until finally there remained in employment only a small group of miners earning fabulously high wages.

Hence, the logical implication of the proceeds-sharing system, as applied in the coal-mining industry, is a progressive contraction in the size of the industry. Until equilibrium is restored to the industry this is admittedly a point in favour of the system; but once the excess productive capacity has been squeezed out,

the ascertainment system will need revision if an unwelcome further contraction is to be avoided.

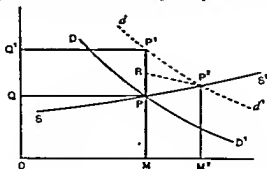
(6) *The ratio between wages and profits.*—The crucial part of any agreement for regulating wages by sharing net proceeds is the determination of the proportions in which the proceeds are to be divided between aggregate wages and aggregate profits. (In the coal-mining industry there has, until recently, been little controversy over this vital issue, because the provisions for sharing surpluses have for the most part been inoperative ; controversy has turned, instead, on the level of the minimum rates.) The mine owners originally intended that the scheme should provide a guarantee of certain standard profits per ton, this being calculated by reference to some assumed normal rate of return on the estimated capital sunk in the industry. This method was finally rejected in favour of a standard ratio between aggregate profits and aggregate wages. The ratio adopted was that which prevailed before the war. According to the calculations made by Sir Josiah Stamp for the Mining Association when they were drawing up their proposals in 1921, the aggregate profits of the mining industry in the twenty years 1894–1913 constituted, on the average, 17·3 per cent of aggregate wages.¹ In the individual years, of course, the ratio diverged considerably from

¹ In his calculation of aggregate profits, Sir Josiah made no allowance for the net losses which were not fully covered by profits in the five-year period of income tax assessment. The figure was excessive also through the inclusion of the profits of certain subsidiary undertakings, especially coke ovens. As offset against these two factors of excess, had to be set the fact that he did not include profits on coal-mining undertaken as subsidiary to other concerns. He estimated that the two factors of excess and the factor of deficiency approximately cancelled each other out. (Sankey Commission, *Minutes of Evidence*, Qs. 763 *et seq.*; Samuel Commission, *Minutes of Evidence*, p. 264.)

this, rising to as much as 42 per cent in 1900 and falling as low as 6 per cent in 1895. The figure of round about 17 per cent which emerged from these calculations has persisted in all the subsequent mining agreements as the basis of the division of the industry's proceeds.

(i) There is, theoretically, a good deal to be said for the establishment of a fixed ratio between aggregate profits and wages in a particular industry. It has the great merit of automatically arranging not only that rates of wages and profits shall rise together in an industry enjoying an increased demand, but also that wages shall come down again as profits decline through the expansion of the industry to meet the increased demand. In the period immediately following an increase in demand, net proceeds will have risen relatively to the capital and labour employed in the industry; but as additional resources are attracted into the industry and output expands, the price will begin to decline and the net proceeds per unit of labour and of capital will gradually return to their former level.¹

¹ In the adjoining diagram SS' is the long-period supply curve, assuming certain "normal" rates of wages and profits, i.e. rates equal



to those which labour of similar efficiency and capital bearing similar risks can obtain in other trades. Proceeds are assumed to be divided

A fixed wage-profit ratio thus avoids the kind of wage rigidity which was discussed in Chapter II, and reproduces the same kind of response of wage rates to short-period fluctuations as in a perfectly competitive system.

(ii) But it suffers from the serious disadvantage of exposing workers to much more violent fluctuations in their earnings than can arise where there are fixed standard rates. In an industry whose product has an inelastic demand, a fixed wage-profit ratio might easily cause wages to fall below a bare subsistence level in the worst years of a depression. Hence whatever the theoretical merits of a fixed ratio between wages and profits, *it must be rejected as impracticable*, because of the intolerable instability of wages to which it would give rise.

(iii) "The most obvious corrective to excessive fluctuation", as the Samuel Commission pointed out, is "the provision of a minimum below which wages may not fall, coupled with the further provision that any extra expenditure incurred by the employers in paying wages at the minimum rather than at the economic rate in bad years should be recovered by them from the profits of subsequent good years."¹ In bad years wages will fall to a less extent than profits owing to the brake of minimum rates; and in good years the rise in wages will be smaller or slower than that of profits, according to the method adopted for the recoupment of deficiencies. By thus modifying

equally between aggregate wages and profits. The demand moves from DD^1 to dd^1 , the price rises immediately to P^1M and the proceeds increase from $OMPQ$ to OMP^1Q^1 . Profits (and wages) per ton now exceed the normal by RP . Entrepreneurs expand output to take advantage of the abnormal profit situation, the price gradually declines and with it the abnormal profits and wages per ton, until the price reaches P^1M^1 , where both wages and profits have returned to their normal positions.

¹ Report, p. 144.

the fixed wage-profit ratio, plasticity of wage rates can be retained, without subjecting wage-earners to fluctuations in their incomes as severe as those experienced by profit-makers.

The extent to which these provisions for minimum rates and recoupment of deficiencies correct the excessive instability of wages associated with a fixed wage-profit ratio clearly depends on the level at which the minimum is fixed, and on the method of recouping deficiencies. If the minimum rates are approximately equal to the economic wage which the industry can pay on the average of good and bad years, the whole of the surpluses in the good years will be required to make up for the deficiencies of the bad, so that wage rates will never rise above the minimum. On the other hand, if the minimum is only slightly above the economic wage the industry can pay in the worst years of a cycle, the deficiency can be easily recouped as soon as trade begins to recover, so that for the whole of the boom period and the early stages of the recession proceeds can be strictly divided according to the fixed wage-profit ratio.

(7) *The recoupment of deficiencies.*—There are several methods of recovering deficiencies of profits, with slightly differing effects on the plasticity of wages.

(i) If deficiencies are wholly recoverable from any subsequent surplus, wage rates will remain at their minimum during a boom until the whole deficiency has been recouped, and will then suddenly jump upwards. This is an undesirable arrangement for two reasons: it produces spasmodic instead of continuous movements of wages; and it is likely to cause discontent amongst workers, for it debars them from any share in the gains of increasing prosperity until,

possibly, boom conditions have already developed. For instance, in urging their claim for an increase of 2s. a day at the end of 1935 the miners pointed out that any likely improvement in the economic position of the coal industry would not warrant automatic increases under the ascertainties for about two years, owing to the accumulation of deficiencies in most districts.¹

(ii) A better method is to limit the proportion of any surplus which can be applied to the making-up of deficiencies. In the 1924 mining agreement, for instance, not more than one-third of any surplus could be claimed by the owners for this purpose. This arrangement has been continued since 1926 in two districts, viz. South Wales and North Staffordshire. It has the advantage, as compared with the first method, of giving wage increases as soon as the net proceeds permit the payment of something more than the minimum rates; moreover it graduates the wage increments during a boom instead of causing a spasmodic movement.

(iii) An alternative mode of recoupment is to prohibit any recovery of deficiencies until wage rates have risen to a certain prescribed level above the minimum. Under this arrangement, aggregate wages and profits would expand at the same rate in the early stages of a boom until wages reach this prescribed level; wages would then remain constant while profits continued to expand through the recoupment of deficiencies at the height of the boom. This method of recovering deficiencies has the potential advantage of confining the fluctuations of wages within a narrower margin than either of the two previous arrangements; it was for this reason that it was preferred

¹ PEP, *op. cit.*, p. 184.

by the Samuel Commission.¹ But to make it work satisfactorily for both parties, the minimum wage rates and the rates which must be reached before deficiencies are recoverable need to be very carefully adjusted, so that the whole of a deficiency is recouped at the height of a boom, but not before the peak is reached. If the margin—within which wages may rise above the minimum before deficiencies may be recouped—is made too wide, it may prove impossible to recover all the arrears of profits before the recession sets in; on the other hand, if the margin is too narrow, the whole of the deficiency may be recovered before the peak of the boom is reached and wages will then suddenly shoot upwards. Since the course of a short-period fluctuation cannot be accurately foreseen, it would be well-nigh impossible to arrange the recoupment of deficiencies so as to avoid both these contingencies.

This method of treating deficiencies was adopted, up to 1936, in South Derbyshire, with the provision, however, that deficiencies outstanding more than twelve months were to be cancelled in April of each year; 40 per cent of any surplus after paying wages at 40 per cent above basis (as compared with minimum rates of 29 per cent above basis) could be applied to recoupment. This arrangement has since been modified in favour of the owners. Deficiencies are now carried forward, and 40 per cent of any surplus is to be applied for recoupment. Of the remainder of the surplus, 85 per cent is to be applied to wages, until the percentage payable on basis rates reaches 40, after which 50 per cent of any remaining surplus is to be applied to wages. A similar agreement for the treatment

¹ *Report*, p. 141.

of deficiencies has been made in the Cannock Chase district.

(iv) There is a fourth method of treating deficiencies, viz. the imposition of a time limit on their recoverability. If the maximum period within which recoupment is permissible is twelve months, as is the arrangement in several mining districts, the men's share in any increasing prosperity cannot be delayed longer than this period, since any outstanding deficiencies are then cancelled. This method permits a wider range of fluctuations in wages than the preceding one, since it restricts the recovery of deficiencies to the early stages of a boom and allows wage rates to rise as much as profits in the later stages. Furthermore, it increases the riskiness of investment in the industry, as there is no guarantee under this arrangement that deficiencies will all be ultimately recovered so as to yield long-run profits equal to the assumed standard proportion of wages. Hence, if this method of recoupment is adopted, the owners would appear to have a reasonable claim to a profit-wages ratio rather more favourable to themselves than the usual 17 per cent arrangement. In practice, the districts imposing time limits on the recoverability of deficiencies (Lancashire and Cheshire, South Yorkshire, West Yorkshire, Nottinghamshire, North Derbyshire, Leicestershire and Warwickshire) have not departed from the usual ratio between wages and profits. Kent has restricted the recoverability of deficiencies by cancelling one-eighth of the total deficiency at the end of each quarter.

(8) *The proposal to vary the wage-profit ratio.*—An alternative method of smoothing out the excessive fluctuations in wages which would arise if a fixed wage-profit ratio were adopted without modification

was suggested by Sir Josiah Stamp in his evidence to the Samuel Commission.¹ Although he held strongly the view that "if wages have the potentiality of greater fluctuation they will actually fluctuate less", he realized the need for compromise in wage agreements whenever the aims of stability of earnings and flexibility of wage rates come into conflict. His proposed solution, as regards the mining agreements, was that the wage-profit ratio should be varied, as between years of good and bad trade, so as to give wage-earners a more than average share of the proceeds in depressed years and owners a more than average share in boom years. He suggested that a kind of sliding scale might be drawn up, whereby the ratio between wages and profits should vary with the amount of the divisible proceeds. Theoretically this arrangement is to be preferred to the method of imposing minimum wage rates and permitting the recoupment of deficiencies, since it makes it possible to adjust the flexibility of wage rates to whatever degree is deemed expedient in the interests of stability of earnings. In practice, however, it could hardly be adopted as an alternative, for it would involve the abandonment by the men of the whole principle of a minimum wage.

A slight approach to this arrangement was made in the agreement of 1921, by applying to the surplus (after deducting "standard wages", "standard profits" and other costs from the gross proceeds) a different ratio of division from that which existed between "standard profits" and "standard wages". "Standard profits" were 17 per cent of "standard wages", while the profit share of the surplus was nearly 25 per cent of the wage share. Hence in a boom, when the

¹ *Minutes of Evidence*, Qs. 2590-2596.

surplus was likely to form an increasing proportion of the total proceeds, the proportionate share of the total proceeds going to profits necessarily tended to increase. The existing district agreements in Lancashire and Cheshire and the Forest of Dean differentiate similarly between the standard ratio and the surplus ratio, the latter being more favourable to the owners.

(9) *The determination of the wage-profit ratio.*—In fixing the precise ratio between aggregate wages and aggregate profits, the simplest method is to ascertain their relative amounts in some assumed normal base period and adopt the ratio between the two as the standard. If this method is to give economically sound results, three conditions must be fulfilled.

(i) First, the relative amounts of wages and profits in the base period must have been "normal"; for this purpose, "normal" must be understood to mean that wage rates and the marginal returns on new investment in the particular industry were on about the same level as in industry generally. Obviously if, in the base period, wages happened to be "unfairly" high or low as compared with those paid in other trades, or if capital were better or worse remunerated than elsewhere, the adoption of the wage-profit ratio of the base period as the norm would tend to perpetuate a disequilibrium. On this ground, the ratio adopted in the mining agreements is, theoretically, open to some criticism, as profits in the mining industry in the period 1894-1913 were, according to Sir Josiah Stamp, "extraordinarily low", i.e. in relation to the returns in other trades and taking into account the special riskiness of mining investment.¹

(ii) Secondly, no significant change must have

¹ Sankey Commission, *Minutes of Evidence*, Q. 788.

agreements have worked unsatisfactorily and unfairly for the men, owing to the restriction of the scope of the ascertainment. They declare, more particularly, that the owners are able to compensate for the low profits or losses on coal mining proper by collecting handsome profits from their subsidiary undertakings, especially by-product works and selling organisations; but the comparative prosperity of these subsidiaries confers no benefit on the miners, as their financial results are excluded from the ascertainment. The South Wales Miners' Federation, for instance, submitted evidence to the Bridgeman arbitration committee in 1934 showing that colliery companies responsible for 80 per cent of the district output were making substantial profits although the district wage ascertainment showed net losses. The committee was sufficiently impressed by the evidence to declare in its award that "the figures obtainable from the ascertainment tables in their present form do not give any complete picture of the profits and losses in the coalfield under the conditions which now prevail".

It is perhaps inevitable, in view of evidence of this kind, that the men should suspect the collieries of transferring coal to subsidiary departments and allied concerns at unduly low prices in order to reduce the apparent proceeds from coal-mining proper. Hence arises their claim that such closely related undertakings as coking and by-product plants, patent-fuel works, selling organisations, etc., should be treated as part of the mining industry for the purpose of the wage ascertainment.

These criticisms of the method of determining the proceeds of the mining industry raise two distinct issues: (i) where exactly the limits of the coal-mining

industry are to be drawn, and (ii) whether the collieries do transfer coal at unduly low prices to their subsidiaries, deliberately or otherwise, and if so what remedies should be adopted.

(1) *The scope of the ascertainment.*—The first question appears, at first sight, to be a technical problem of industrial demarcation. But it is much more than that; it raises some of the fundamental issues of wage determination. The processes involved in mining coal can be pretty sharply differentiated from the subsequent processes in which coal is utilised as a fuel, which happens in practically every industry, directly or indirectly, or as a raw material, *e.g.* in producing gas, coke, patent fuel, etc. The coal-mining industry proper clearly ends when the coal has been brought to the pit-head and sold; all the subsequent processes belong to quite distinct industries.

If no colliery company had ever extended its activities to include some of these subsequent processes, and if concerns in other industries, *e.g.* iron and steel, had never undertaken coal-mining, no question would ever have arisen as to the scope of the mining industry. But the tendency to vertical integration has created many "mixed undertakings" with interests in both coal-mining and other industries. In 1924, for instance, 23 per cent of all the coal sold went to associated undertakings, including selling agencies, in which the colliery companies or their directors had substantial interests;¹ and it has recently been suggested that this figure has now risen as high as 40 per cent.² Hence arises the claim that if the colliery companies are able to share in the profits on subsequent processes by extending their

¹ See Samuel Commission Report, p. 135.

² See PEP, *op. cit.*, p. 177.

financial interests, the miners should be put in a similar position by extending the scope of the proceeds-sharing scheme.

(i) Although coal-mining and coal-processing are technically quite distinct, a good case can be stated on economic grounds for their combination for the purpose of wage determination. In the second chapter we found reason to question the soundness of the practice of basing wages on what the individual industry can afford to pay. A uniform level of wage rates, based on what industry as a whole is capable of paying, would accelerate the expansion of the prosperous trades and hasten the contraction of the depressed, thus speeding up the transference of labour. Complete uniformity of the wage-levels of different trades is out of the question in an "unplanned" system; but greater uniformity than prevails at present might be secured if the integrating tendencies of modern industry were accompanied by an extension of the areas within which common wage-levels are fixed. Thus if two closely related groups, with interlocking financial interests, such as coal-extracting and coal-processing, were treated as a single industry for the purpose of wage regulation, wages in the former depressed stage would rise slightly above the level which would otherwise have prevailed and so hasten its contraction; while in the latter and more prosperous stage wages would fall somewhat below the level which would otherwise obtain, and so hasten its further expansion.

(ii) But clearly the standard ratio between wages and profits under the mining agreements would have to be modified if the industry were extended to include processes in connection with which very different wage-profit ratios obtained in the base period.

Labour costs are nothing like as high a proportion of the total costs in coking and by-product works as in coal-mining. Hence, if the principles of the existing agreements were adhered to, the inclusion of these subsidiary undertakings would require a slight raising of the standard ratio between profits and wages.

(iii) The main practical objection to the inclusion of the proceeds of coking and by-product undertakings is that it is by no means clear that they "belong" to the coal-mining industry and not to the iron and steel industry. In 1925, according to evidence submitted to the Samuel Commission, of the total output of metallurgical coke produced in this country, 41 per cent came from ovens owned by collieries unconnected with the iron and steel industry, 38 per cent from ovens owned by collieries combined with iron and steel concerns, 7 per cent from ovens owned by iron and steel concerns unconnected with coal-mining and the remaining 14 per cent was produced by independent coking concerns.¹ Thus 45 per cent of the output came from ovens wholly or partly controlled by iron and steel undertakings. It would be unsound to include in the ascertainment those subsidiaries wholly controlled by the collieries and exclude the remainder, as this would set up disparate wage rates within the coking industry. When the coal, coke, iron and steel industries become so closely interrelated that they can be treated as a single group for purposes of wage regulation, a satisfactory solution of this problem may be possible; but until then, the coking industry is likely to continue to make its own wage arrangements, independently of its two neighbours.

¹ *Report*, p. 135

(iv) The preceding considerations, however, do not apply so clearly to subsidiary selling organisations. It cannot be contended that selling coal is not technically part of the coal-mining industry, since obviously there are no proceeds at all until a colliery has marketed its coal, either through its own sales department or through some technically separate but financially associated agency. Where a colliery sells directly to factors, merchants or consumers, the proceeds, for ascertainment purposes, are calculated by taking the gross sales to all customers and deducting delivery and selling expenses, so that any profits on the marketing of coal are brought into the proceeds. But coal marketed through a subsidiary selling agency is valued in the ascertainment at the current transfer prices. Hence, "an associated selling agency may appear to the miners to be a means of taking out of the wage ascertainment part of the proper proceeds; if a colliery replaces its own salaried salesman by an independent but associated selling agency which charges and makes a large profit on a commission of 6d. a ton, the district ascertainment will be the poorer by that profit".¹ The Samuel Commission recommended, in my opinion rightly, that the profits of subsidiary selling organisations should be included as proceeds in the ascertainment.

(2) *Transfer prices.*—The second question, whether coal is transferred to subsidiaries at unfairly low prices, can be answered only by those having access to colliery books. I can only refer here to the evidence given to the Coal Commission of 1925 by Sir William McLintock and Mr. J. A. Gordon, then independent accountants to the National Board for

¹ *Report of the Samuel Commission*, p. 92.

the Coal Industry,¹ and to the comments of the Commission on this evidence.

(i) The wage agreements provided that the accountants should value all coal transferred to allied concerns and departments at "fair transfer prices, based on current market values". The two accountants were satisfied that adequate arrangements were made to prevent any coal being transferred at unfairly low prices. They stated that they paid special attention to transactions with subsidiary and associated undertakings, and did not necessarily accept unchallenged the transfer prices returned by the collieries. It quite frequently happened that small additions were made by the accountants to bring the transfer prices to the level they considered "fair". They admitted that, as regards the quality of the coal transferred, they had to rely on the descriptions in the colliery books and on information given them by colliery officials, but declared that there would have to be a deliberate intent to deceive for, say, large coal to be transferred and charged up as small coal.

(ii) Nevertheless, without reflecting in any way on either the mine-owners or the joint accountants, the Royal Commission expressed the opinion that "a radical change in the treatment of transfer prices is needed to place the wage ascertainment beyond suspicion". They were led to this view mainly by certain general considerations rather than by statistical evidence. "There is no reason for suspecting anything that can justly be described as deliberately unfair dealing in this matter. The direct gain to any individual employer in lowered wages is too small to be a serious temptation, as wages are determined by the district

¹ *Minutes of Evidence*, Qs. 5409-5657.

results and not by those of single collieries ; the individual proceeds of each mine are ordinarily only a trifling fraction of all that goes into the wage ascertainment of the district. In any case, anything like fraud would very soon be detected by the accountants. The difficulty is simply that there are many points in the fixing of transfer prices as to which genuine doubt is possible—such as the precise quality of coal, or the proper division of the economies of geographical situation and regular contracts—and that, in the solution of these doubts, the mine-owner selling under associated conditions has no particular interest in securing the highest possible price for coal as it leaves the colliery, since he can make up later on, while he has some motive for giving the benefit of any doubt against the colliery.”¹

(iii) In addition, the Commission adduced certain rather inconclusive evidence which suggested that the prices of coal sold, in 1925, to coke ovens associated with collieries had risen less since 1913 than the price charged to coke ovens independent of collieries. Moreover, the fact that the joint accountants often had to raise transfer prices for ascertainment purposes was regarded as evidence that collieries tended to transfer coal at prices below its current market value. They therefore felt that they were not justified in assuring the miners that transfer prices were not and could not be depressed.

The Commission considered several suggestions for amending the methods of ascertainment in order to remove all possible grounds for suspicion, and recommended that in each district some impartial authority should publicly declare the prices at which all descrip-

¹ *Report*, p. 133.

tions of transferred coal should be valued for each ascertainment period. In Stock Exchange parlance, a kind of "making-up price" would be announced, and would be applied to all transactions with associated organisations. This arrangement would possess the advantage of making transfer prices a matter of public knowledge, and would relieve the accountants of the task of judging the "fairness" of the prices entered in colliery books.

(iv) But how would these impartial authorities be selected, and on what principles would they determine the official transfer prices? If the official prices were automatically determined by taking the average of the prices obtained for each description of coal when sold in the open market, the joint accountants would seem to be indicated as the appropriate authorities. But if any element of discretion is to be permitted, their selection would be a much more difficult task. To give reliable judgments as to the "fairness" of transfer prices in the doubtful cases would require a specialised knowledge of the coal trade; and any person possessing such knowledge, however impartial and well intentioned he might be, would almost inevitably be suspected of bias, by one side or the other. On the whole, it would be simpler to instruct the joint accountants, in the agreements, that all transfer prices are to be the averages of the prices obtained in the open market. The miners would then know by what method the accountants arrived at "fair" transfer prices.

The main object of the complicated ascertainment system is to acquire an *automatic* index of the wage-capacity of the industry, and so leave no room for any differences of opinion which might lead to a stoppage; but this object is frustrated as long as the important

item of transfer prices is not automatically determined. In a few exceptional cases there might be no coal sold on the open market corresponding exactly in quality to that transferred to an allied undertaking; these cases would have to be referred by the accountants to some outside expert. But they would constitute a negligible proportion of the coal valued at automatically determined transfer prices.

(v) It should be noted that the extension of the scope of the ascertainment so as to include subsidiary undertakings would provide no solution of this problem of transfer prices. Wherever the boundaries of the coal industry are drawn there will still be sales to undertakings financially associated with mining concerns.

(3) *Minor Criticisms.*—Finally, there are certain minor features of the ascertainment system which have been criticised. The miners object to the inclusion of directors' fees in "costs of production other than wages"; they contend that this enables the owners, in so far as they are directors, to draw guaranteed incomes from the industry and charge them up against the gross proceeds before arriving at the net proceeds. The Samuel Commission suggested that, in order to disarm criticism, directors' fees should be treated as part of the profits; this recommendation, however, has not been adopted. The owners have claimed that interest charges and amortisation ought to be included amongst "other costs", as profits are not net until these charges have been met. But the object of the proceeds-sharing scheme is to divide the industry's proceeds between labour and capital; and from this point of view it matters not whether the capital has been subscribed by the colliery owners themselves or borrowed by them. Hence it seems sound to exclude

all interest charges from the ascertainment; their inclusion would obviously create anomalies as between undertakings operating wholly with shareholders' capital and those raising part of their capital from debentures or bank loans. Amortisation is logically part of the costs incurred in mining and should be chargeable in the same way as depreciation; but as no allowance was made for this item in Sir Josiah Stamp's original calculation of the ratio between profits and wages, it would seem better to continue to ignore it, if the object is to maintain the pre-war division between wages and profits.

CHAPTER VII

OTHER INDICES OF THE WAGE-CAPACITIES OF INDIVIDUAL INDUSTRIES

IN addition to ascertained selling prices and net proceeds there are a number of other indices of the wage-capacities of individual industries which call for brief mention. They include (1) output, (2) gross receipts, (3) percentage of unemployment and (4) exports.

(1) *Output as an index of wage-capacity.*—The British coal-mining industry supplies an illustration of the first of these. After the short national strike in October, 1920, the miners accepted a temporary settlement with the Government pending the adoption of a permanent scheme for the regulation of wages. Under this settlement an advance of 2s. a shift to all miners over 18 was conceded up to the end of December; thereafter wages were to depend on the rate of output per annum in the preceding month, in accordance with the following scale:

Rate of Output per Annum		Increase of Wages per Day	
Not less than—	And not more than—		
238 million tons	242 million tons	s	d
242 " "	246 " "	1	0
246 " "	250 " "	1	6
250 " "	254 " "	2	0
254 " "	258 " "	2	6
258 " "	262 " "	3	0
262 " "	266 " "	3	6
		4	0

At the time, the Government was exceedingly anxious to increase the production of coal. There was a huge foreign demand for British coal and abnormally large profits were being made on exports; but at the same time the output was comparatively low and was still declining, so that the country was confronted with the danger of a coal shortage. The Government was firmly of the opinion that the remedy for the low output lay in the hands of the miners; it believed, moreover, that to raise wages still further without any stipulations as to production, would encourage absenteeism and lower output on the part of the miners. During the negotiations preceding the settlement, the Prime Minister wrote to the miners' leaders in the following terms: "We put before you a means by which your members could be assured of the increased wage which they ask by giving the country once more the measure of output which the miners yielded in the first quarter of the year. . . . It is very unfortunate that recent increases in wages have been followed almost automatically by a reduced production."¹

The miners challenged the assumption that they were responsible for the low output and demanded an inquiry into the matter. They pointed out that output depends on many factors besides the miners' efforts, and averred, for instance, that unusually large numbers of men were being employed on development work so that the pits would be in good working order when the industry was decontrolled.²

It can be claimed, in defence of the principles of the 1920 agreement, that the total output of an

¹ See Miners' Federation of Great Britain, *Annual Volume of Proceedings for 1920*, p. 1353.

² Cf. G. D. H. Cole, *op. cit.*, p. 142.

industry is one of the factors determining the wages it is capable of paying ; and, in the special circumstances of the coal industry in 1920, output appeared to be the only important *variable* factor that needed to be considered. The industry was assured of highly remunerative prices for all the coal it could produce, as there appeared to be no limit, for the time being, to the foreign demand. Hence the more the men produced the more, in rough proportion, the wages the industry could afford to pay them.

But, as a permanent basis for the regulation of the wage-level of an industry, aggregate output is most unsatisfactory. Where the demand is highly elastic an increased output may augment the gross proceeds of the industry almost in proportion ; but where the demand is inelastic (in the technical sense of the term) the gross proceeds must actually diminish as the output increases. And to increase wage rates when the gross proceeds of an industry are shrinking would appear to be the height of folly. Furthermore, if variations in aggregate output are to give any reliable indication of changes in wage-capacity, they must obviously be considered in relation to variations in the number of workers employed.

Professor Cannan was moved to write to *The Times* roundly condemning this "entirely new principle". "If successful, the plan of paying wages according to aggregate output must necessarily end in an impasse. The natural tendency of increasing aggregate output is to diminish the value of the unit of output, and eventually even to diminish the total value of the aggregate output . . . under the old system this diminution of value acted as a natural and easy check on the further application of resources to any particular

branch of production by reducing the profits and wages obtainable in it, but under the proposed system of paying wage bonuses on aggregate output, wages must remain undiminished, if they be not positively increased, no matter how far increase of quantity may have diminished the value of the product. It is obvious that an industry could be long carried on under this plan without a subsidy from taxation if the bonuses were really effective in causing continuous increase of output."¹

(2) *Gross receipts as an index of wage-capacity.*—The gross receipts of an industry are a distinct improvement on output alone as a basis for the adjustment of wage-levels. This type of index has been adopted since 1933 by some of the Argentine railway companies. For instance, the Buenos Aires Great Southern Railway and its employees adopted a scheme (under an arbitration award) whereby the extent of wage cuts was to be regulated by the annual gross traffic receipts.² So long as the gross receipts exceeded 140 million pesos there was to be no wage reduction; when they were between 130 and 140 million pesos the reduction was to be 3 per cent; between 115 and 130 million pesos 5 per cent; and between 105 and 115 million pesos 8 per cent. The wage adjustments were made quarterly on the basis of the receipts in the preceding twelve months. Similar principles were applied to wage variations in the case of other Argentine railway companies.

As a method of adjusting railway wages to meet a short-period decline in traffic this scheme has much to commend it. Railways cannot meet a diminution in

¹ *The Times*, October 25th, 1920, reprinted in *An Economist's Pocket*, p. 251.

² *Modern Transport*, January 14th, 1933, p. 8.

the volume of traffic by making anything like a proportionate reduction in the number of men employed or the quantities of raw materials utilised ; in fact, apart from reductions in wage rates or in the prices of materials, the bulk of their working costs are highly inflexible. Hence railway profits must normally follow very closely the fluctuations in traffic receipts. Moreover, in the short period the amount of capital invested in the railway industry can safely be assumed to be constant, so that a decrease in aggregate profits indicates an equivalent decline in the rate of profit on capital. The scheme adopted by the Argentine railways means, therefore, in effect, that wage rates vary with the rate of profit on capital, which is sound in principle. A further merit is that the wage reductions are less than proportionate to the diminution in traffic receipts; profits are thus left to bear the brunt of the decline, and the railway managements are not relieved of the need to seek improvements in railway working.

But it would be economically unsound to adopt this method of wage regulation as a permanent scheme, unless provision were made for the revision of the scale relating wage rates to traffic receipts whenever changes occurred in the amount of capital invested in the industry. If additional receipts were secured in consequence of additional capital expenditure, *e.g.* in increasing the route mileage or in providing improved facilities, they would not necessarily indicate ability to pay higher wages. In fact, the management might have calculated that the additional investment was financially worth while only on the assumption that no increase of wages occurred. The automatic raising of wage rates whenever receipts increased would thus unduly discourage investment in the industry. On the

other hand, reductions in the amount of the industry's real capital, *e.g.* through the non-renewal of worn-out equipment, or the closing-down of branch lines, would, in so far as they reduced receipts, automatically reduce wage rates; disinvestment would therefore be unduly encouraged.

To avoid these consequences, an estimate would have to be made of the effects on receipts of any additional investment or disinvestment within the industry, so that the scale relating wage rates to traffic receipts could be suitably adjusted. This would by no means be an easy matter. If a company electrified its main lines at a time when trade was expanding, how could the additional traffic receipts be allocated between the two factors responsible? Again, the loss of receipts due to the closing-down of a branch line cannot be accurately determined; not only the branch-line traffic, but in addition an unknown amount of main-line traffic, will be lost. Or, where worn-out equipment is replaced by equipment of an improved kind, it is an exceedingly difficult accounting problem to decide whether the whole of the cost of the new equipment is to be regarded as revenue expenditure, or whether part of it is additional capital expenditure. Controversy would inevitably and interminably arise between the two parties on these and similar issues, so that the main aim of the scheme, the setting up of an automatically determined index of wage-capacity, would be defeated.

In a fully developed and stabilised industry these objections might be of little moment. But every industry, including the railway industry, is usually in a position of capital expansion or contraction; constancy of capital is nowhere likely to be found except

in the very short period. Hence the regulation of wages on the basis of gross receipts can be recommended only as a short-term arrangement.

(3) *Unemployment as an index of wage-capacity.*—A third index which has been suggested as a suitable basis for the adjustment of wages is the percentage of unemployment in the industry concerned. A sliding scale might be drawn up, relating the standard rates of wages to some selected level of unemployment, and providing for increases above the standard when unemployment falls below this level, and for reductions when it exceeds it. A proposal on these lines has been made by Mr. J. P. Bibby.¹ Starting from the assumption that lack of plasticity of wages is the real cause of unemployment, he advocates as a remedy the creation of "controlled plasticity". "Controlled plasticity" means that "the wage rates of every class of wage-earner should be controlled by some appropriate union, that no adjustment of wage rates at any one time should exceed a certain small percentage of the wage-earner's wage, and no adjustment should follow a previous adjustment within a given period. . . . In practice, controlled plasticity would involve each wage-earner affiliating himself to some union; each union would classify its membership into various grades and enter into a national agreement that when the local membership of any grade or trade contained a given number of unemployed members (say 2 per cent), the wages of that grade of labour in that locality would fall a given percentage (say 6d. in the £)."²

The level of unemployment is one of the indices of economic conditions normally considered by concilia-

¹ *Unemployment: An Analysis and Suggested Solution.*

² *Ibid.*, p. 28.

tions boards, arbitrators and other wage-fixing authorities. For instance, according to Mr. R. S. Spicer: "prior to 1914 it was in accordance with capacity to pay that engineering wages fluctuated, the fluctuations being brought about by a series of negotiations in which employers and workpeople agreed from time to time to raise or lower wage rates in accordance with the local prosperity of the industry as determined usually by the Trade Union percentage of unemployment".¹ But only one case is known to the writer in which a collective agreement has formally provided for the adjustment of wages by reference to this factor. In 1910 an agreement was reached between the engineering employers and the allied engineering trade societies of Bolton, Bury and district, which provided that "if at the end of twelve months, or any subsequent period, the Board of Trade returns in the general engineering trades of the country show a percentage of 7 per cent or less unemployed, the employers agree to advance the members of the allied trades by the sum of one shilling per week on time rates, and of two and a half per cent on piece-work earnings. These rates then to remain for the unexpired period of the four years as per this agreement."²

The proposal to take the level of unemployment in a trade as an indication of the direction and extent of the wage changes that are needed is an attractive one. Unemployment is at least as good an index of the economic condition of an industry as selling prices. Furthermore, if one starts from the view that "such unemployment as exists at any time is due wholly to the fact that changes in demand conditions are

¹ *British Engineering Wages*, p. 132.

² *Report on Collective Agreements, 1910* (Cd. 5366), pp. xxi and 82.

continually taking place and that frictional resistances prevent the appropriate wage adjustments from being made instantaneously",¹ it would seem to follow that the presence of unemployment in a trade is an infallible sign that wages are more than that trade can bear.

If the wages a trade can bear are taken to mean those which will just permit the absorption into employment of all the workers attached to the trade, this argument is sound. But if we understand the phrase to mean the wages which will just permit all the firms, including the marginal, to make normal profits, then the presence of unemployment certainly does not indicate wages in excess of what the trade can bear. The unemployment caused by technical progress, rationalisation and so forth, is by no means necessarily associated with a low profit situation. In fact, as was argued in Chapter II, technological unemployment indicates that wages are too high not in the industries where such unemployment prevails, but in other industries enjoying expanding demands as an indirect consequence of the technical progress which caused that unemployment.

And here a further objection to the proposed method of wage regulation arises. It would provide an apparent justification for the indefinite maintenance of high wage rates in these prosperous industries, since they would suffer comparatively little from unemployment. The wage reductions required in these industries to facilitate an adequate industrial transference of labour from industries with technological unemployment would not be effected, because their indices of wage-capacity (their unemployment percentages) would warrant the continuance of high wages.

¹ A. C. Pigou, *The Theory of Unemployment*, p. 252.

This objection would not apply so strongly to the use of this index by a prosperous trade recruiting labour on a casual basis; in this case, unemployed workers from other trades, attracted by the high wages, would be able to attach themselves in large numbers to the prosperous trade, unemployment would appear in it in spite of its prosperity, and the index of wage-capacity would then warrant wage reductions. But where the "preference method" or the "privileged class method" of recruitment is adopted,¹ it will be difficult for outsiders to attach themselves to the industry, so that as long as its prosperity is maintained unemployment in it may remain at an abnormally low level, and no wage cuts will be justified by the index.

In short, the use of unemployment figures as an index of the wage-capacity of a particular trade is open to a twofold objection: it would impose wage cuts in trades making normal profits but suffering from technological unemployment; and it would prevent wage cuts in prosperous trades and so restrict their capacity to expand and absorb the unemployed attached to other industries.

This index of wage-capacity is never likely to be widely adopted in practice as the sole regulator of wages, for it would be quite unacceptable to organised labour. Trade unions do not regard the presence of serious unemployment in a trade as irrefutable proof that profits are low and that wages are above the level the trade can bear. "The test of unemployment has never been regarded by the wage-earner as adequate, because he regards unemployment not as a sign that wages are out of adjustment with the derived demand

¹ A. C. Pigou, *Economics of Welfare* (1929), p. 542.

for labour, but as a pestilence outside his control.”¹

(4) *Exports as an index of wage-capacity.*—Exports of machinery have been suggested by Mr. R. S. Spicer as the best available index of the capacity of the engineering industry to pay wages.² He proposes that a composite index of wage-capacity should be calculated by averaging an index of the *volume* of machinery exports and an index of the *value* per ton of these exports.

It can be claimed in support of this proposal that when such an index shows an increase the engineering industry as a whole (including home and export trade) is likely to be making larger profits and to be able therefore to afford higher wages ; and conversely. But there is no *certainty* that the prosperity of the whole industry will move at the same rate, or even in the same direction, as that of the export side. We have recently witnessed a marked recovery in our internal trade unaccompanied by any comparable movement of our exports. It would, in short, be most unsound to take the prosperity of a particular section of an industry as a reliable indication of what the whole industry can afford to pay in wages.

Even if the activity of the export trade could be accepted as a reliable index of wage-capacity, the composite index suggested is less suitable than the aggregate value of exports, which itself is obviously a combination of quantity and price. A 25 per cent increase in volume of exports and a 25 per cent decrease in average price would leave the composite index unchanged ; but it would nevertheless reduce the gross proceeds from exports and might therefore be regarded as *prima facie* evidence of a reduction in wage-capacity.

¹ J. W. F. Rowe, *Wages in Practice and Theory*, p. 152.

² *Op.cit.*, pp. 131 *et seq.*

CHAPTER VIII

COST-OF-LIVING SLIDING SCALES

THE cost-of-living sliding scale is a device intended primarily to ensure that the *real* wage rates payable under a collective agreement shall not be unintentionally increased or reduced through changes in the purchasing power of money during the life of the agreement. It clearly does not preclude changes in real wages arising from the deliberate alteration of the basic rates to which the scale applies; its object is simply the neutralisation of the effects, so far as wage rates are concerned, of changes in the price-level of the commodities on which wage-earners spend their incomes.

The case for such a device has long been recognised by economic writers.¹ It was expounded by Joseph Lowe, in his *Present State of England with respect to Agriculture, Trade and Finance, with a Comparison of the Prospects of England and France*, as early as 1822. He drew attention to the difficulties of raising wages so as to keep pace with rising prices during the Napoleonic wars, and of reducing wages during the period of falling prices immediately following the wars; and he suggested that wages should be regulated by reference to what we should now call an index of

¹ For a more detailed historical account of the proposals for some kind of wage sliding scale based on an index of prices, see A. G. B. Fisher, *Wages and their Regulation in Great Britain since 1918*, pp. 162 *et seq.*

prices. Moreover, he realised that a single index number could not be satisfactorily used to measure changes in the cost of living of different social classes, and advocated a series of index numbers as a solution of this difficulty. Jevons' "tabular standard" was an extension of Lowe's proposal so as to cover not only wage payments but all contracts involving deferred payments. Marshall also gave his weighty support to the principle of the cost-of-living sliding scale.¹

But, for the most part, discussion of the question was purely academic until the later years of the war, when the urgent need for some means of making frequent adjustments of wages to the rapidly rising cost of living forced the matter on to the attention of the public. In Great Britain the Committee on Production, the principal wage-fixing authority during the war, awarded advances periodically "to assist in meeting the increased cost of living", without, however, adhering to any formal sliding scale; other arbitration bodies and wage-fixing authorities followed the Committee's lead in this respect. But certain trades began to make provision for the automatic adjustment of their war advances by adopting sliding scales based on the official cost-of-living index prepared by the Board of Trade (later the Ministry of Labour). The first of these appears to have been that introduced in the dyeing, bleaching and finishing trades of Lancashire, Cheshire and Derbyshire at the end of 1917.

The arrangement commended itself to other trades and its use spread rapidly during the brief post-war boom: in December, 1920, about $1\frac{1}{4}$ million workers

¹ See his introduction to L. L. Price's *Industrial Peace*, p. xxi; also his *Answers on Currency and Prices to the Royal Commission on the Depression of Trade*, reprinted in *Official Papers by Alfred Marshall*, p. 12.

were covered by cost-of-living scales; in August, 1921, about $2\frac{3}{4}$ millions; and in July, 1922, about 3 millions. The post-war depression with its falling price-level led somewhat naturally to a decline in the popularity of these sliding scales on the part of British trade unionists, and to the adoption of a more critical attitude towards them. The number of workers whose wages were regulated under these scales fell to $2\frac{1}{2}$ millions in July, 1925, and to only $1\frac{1}{4}$ millions in July, 1933. Moreover, at the latter date many workpeople who were officially covered by cost-of-living agreements had not had their wage rates altered under the scales for some time, either because the index number had fallen below some minimum figure specified in the agreement, or because the operation of the scheme had been suspended. The Ministry of Labour estimated that, allowing for these cases, there were in 1933 between $\frac{3}{4}$ and 1 million workers covered by cost-of-living scales actually in operation.¹ This number would constitute some 6 or 7 per cent of our employed population.

In other countries the history of cost-of-living sliding scales has been broadly similar.² They were the product of war and post-war inflation, attaining their greatest popularity when currency depreciation

¹ *Ministry of Labour Gazette*, July, 1933, p. 238.

² For accounts of Continental experiences of sliding scales see the series of articles in the *International Labour Review*, in 1924 and 1925; F. Sitzler, "The Adaptation of Wages to the Depreciation of the Currency in Germany" (May, 1924); C. Forchheimer, "Sliding Wage Scales in Austria" (July, 1924); J. Szturm de Sztrem, "Wage Problems in Poland during and after the War" (September, 1924); D. Pap, "The Adaptation of Wages to the Cost of Living in Hungary" (February, 1925). French experience is discussed at length in P. L. Hirsch, *Les récentes échelles mobiles de salaires* (1929), and American in E. B. Carr, *The Use of Cost of Living Figures in Wage Adjustments* (published by the Bureau of Labor Statistics).

was most severe and when, therefore, the recognised defects of these scales were felt to be of very minor significance alongside the overwhelming need for rapid adjustments of wages to the rising price-level. With the stabilisation of currencies the need for sliding scales became less urgent, and more prominence was given by both parties in industry to the disadvantages attaching to this method of adjusting wages. Hence, even before the decline in the world price-level associated with the recent depression, cost of living scales had become restricted to a very small part of the industrial field. Though comparative statistics are not available, it would seem that cost-of-living scales have retained more of their former popularity in Great Britain than in any other country, and even here they cover only a very small percentage of the working population.

In 1933, 75 industries or local sections of industries in Great Britain had separate sliding scales of this type, the principal being those in the building industry (Great Britain, with certain exceptions), boot and shoe manufacture (Great Britain), the bleaching, dyeing, printing and finishing sections of the textile industries (Yorkshire, Lancashire, Cheshire and Derbyshire), railway service (conciliation grades, dock staff, etc.), hosiery manufacture (Midlands and Hawick), machine calico printing (Great Britain and Northern Ireland), machine-made paper-making, local authorities' non-trading services (South Midlands, West Midlands, London, Middlesex and Home Counties, Northumberland and Durham, and West Riding). Five Trade Boards adjust their minimum rates by reference to the cost-of-living index number, viz. those in the chain-making, perambulator and invalid carriage making,

scales, however, vary considerably from scheme to scheme.

(1) In some scales the changes in wage rates are calculated as *percentage* variations from the basic rates, in others they take the form of *flat-rate* additions or deductions of so many pence per hour or week. For instance, the so-called "cost-of-living wage" payable to workers in the textile bleaching, dyeing, printing and finishing trades is a percentage addition to basic rates equal, in the case of time-workers, to the percentage increase in the cost of living since 1914, so long as the index stands above 175; when it falls below this figure the wage variation is 0.8426 per cent for every 1 per cent change in the index. For piece-workers the percentage addition to basic rates is equivalent to four-fifths of that relating to time-workers. This differentiation is intended to make the actual *amount* of the "cost-of-living wage" approximately equal for time-workers and piece-workers, despite the higher average earnings of the latter. Under the agreement adopted by the National Joint Council for the Building Industry in England and Wales, specified hourly wage rates are taken to correspond to an index figure of 78 per cent above 1914; then for each complete $6\frac{1}{2}$ points difference between this datum figure of 178 and the average cost-of-living figure for the twelve-monthly period January to December there is a corresponding flat-rate variation of $\frac{1}{2}$ d. an hour in the wage rates of skilled workers for the following year.

The flat-rate method of adjustment, which is adopted in the great majority of scales, can be so devised as to yield approximately the same results as the percentage method, namely by differentiating between the amounts of the flat-rate variations made in

the wages of different grades of workers. For instance, in the pen-making trade each variation of 4 points in the index gives a wage-change of 1s. 4d. a week to skilled men, 1s. to unskilled men and 5d. to women. Alternatively, the same result can be achieved by relating a given flat-rate change in wages to variations in the index of different magnitudes ; *e.g.* in the London furniture trade a wage-change of 1d. an hour is made for each 12 points variation in the index in the case of cabinet-makers, polishers and other skilled workers, for each 18 points in the case of packers and porters, and for each 24 points in the case of female polishers. In the hosiery trade the Joint Industrial Council has adopted an arrangement under which a bonus is paid of so many pence on each shilling of basic weekly earnings, the amount of the bonus varying by 1d. for each 10 points in the index. But the flat-rate system is by no means invariably adjusted in one or other of these ways ; in many scales all grades of worker receive the same flat additions or suffer the same flat deductions when the index moves by a specified number of points. This is the case, for example, with railway workers and North-East Lancashire furniture trade operatives.

(2) The frequency of the wage adjustments under these scales is another detail which varies considerably. In some agreements the adjustments are made at regular intervals, whether the index is changing rapidly or slowly, *e.g.* quarterly in the case of railways and the textile bleaching, dyeing, etc., trades, annually in the case of the building and the boot and shoe manufacturing industries. In one or two cases the variation in the index has to continue for two or three months before any corresponding change is made in wage rates. There

is naturally a tendency to shorten the interval between adjustments when the price-level is changing rapidly ; in Germany, for instance, at the height of the post-war inflation it was found necessary to make adjustments every week.

In other scales, *e.g.* those in the hosiery and carpet manufacturing trades, wages are modified as soon as the index has moved by some minimum number of points. This latter method has the merit, provided that the minimum price fluctuation permitting a wage-change is not too small, of giving great flexibility to wage rates in periods of rapidly changing prices, and at the same time of avoiding insignificant changes in wages when prices are remaining steady.

(3) Many of these agreements, though not all, have imitated the selling-price sliding scales by introducing minimum wage rates which cannot be reduced however low the index number may fall. For instance, the great majority of the railwaymen covered by the sliding scale (about 95 per cent) are now receiving the specified minimum rates (which were, generally speaking, about 100 per cent above their pre-war level) and will remain quite unaffected by fluctuations of the index number until it rises appreciably. Again, the agreements covering the manual workers employed in non-trading local government services in Northumberland and Durham and in the Southern Home Counties provide that the scales shall cease to operate while the index is below 45 and 67 respectively.

The introduction of these minimum rates appears to have less justification than in the selling-price scales prevailing in the iron and steel trades. The selling price of particular commodities, especially iron and steel products, may, owing to trade depression or techno-

logical reasons, fall to a much greater extent than retail prices in general, so that a rigid adherence to a bottomless selling-price scale might involve a drastic lowering of the wage-earners' standard of living. In fact, the absence of any minimum wage rates in most of the early scales was one of the principal factors responsible for their breakdown. But this consideration can hardly apply to cost-of-living scales, provided that the index used does measure reasonably well the changes in the living expenses of the workers covered by the scales. If a scale is to achieve its primary purpose, namely the elimination of unintentional changes in real wage rates, neither maximum nor minimum money wage rates should be fixed.

(4) In most of these agreements the percentage or flat-rate variation in wages corresponding to a given variation in the index number is the same at all points of the scale. But, in a few cases, the wage variation required by a given change in the index is greater when it stands above some prescribed level than when it is below. For instance, as already mentioned, in the textile bleaching, dyeing, printing and finishing trades, the "cost-of-living wage" varies by 1 per cent of the basic rates for every 1 per cent variation in the index as compared with 1914, so long as the index stands above 175; when it falls below this figure the wage variation is 0.8426 per cent for every 1 per cent change in the index. In the sliding scale agreement of the machine calico printing trade, wages vary by 2½d. a week for every 1 per cent change in the index when it stands above 215, and by 1½d. when it is below. Such a variation of the ratio of adjustment is introduced, like the minimum rates, to impose a brake on the possible reductions in wages; its effect is, however, to cause

real wage rates to rise when the index is falling below the prescribed level and to fall when it is rising towards that level.

THE EXTENT TO WHICH COST-OF-LIVING SCALES ACHIEVE THEIR PURPOSE

Although cost-of-living scales have been adopted to neutralise the effects of changes in the purchasing power of money, most of the agreements embodying this type of adjustment fail in practice to achieve completely the purpose for which they are designed.

(1) *The time-lag.*—In the first place, there is inevitably some lapse of time between the occurrence of a change in the general price-level and the consequent adjustment of wages; in some cases intervals of three months or twelve months elapse between successive wage-changes under these scales. Even when scale adjustments are made on the pay-day immediately following the publication of the index number, there is still some time-lag, owing both to the fact that a variation in the prices of the commodities comprised in the index number may not be ascertained until some time (in Great Britain anything up to a month) after it actually occurred, and also to the lapse of time while the necessary returns and calculations are being made by the department responsible. The result is that when prices are changing, the ordinary cost-of-living scale will not entirely prevent changes in real wage rates.

Admittedly, when prices are changing slowly the sliding-scale method will reduce to very small dimensions the changes in real wage rates. But where the price-level is changing very rapidly this defect of sliding scales may prove much more serious. Three

cases can be distinguished, all being based on the assumption that the wages paid on each pay-day are adjusted to an index of the prices prevailing on the previous pay-day.

(i) When the cost-of-living index is rising at a *diminishing* rate, a sliding scale will not prevent real wage rates from falling on the first pay-day after the rise in prices started. But after the first pay-day real wages will steadily rise nearer to their original level, though they will never be completely restored.

(ii) When the index is rising at a *constant* rate, real wage rates will fall on the first pay-day following the initial rise in prices, but the sliding scale will thereafter keep real wages constant at this reduced level.

(iii) When the index is rising at an *increasing* rate, real wages rate will fall on the first pay-day following the rise in prices, and thereafter the sliding scale will fail to prevent a further steady decline in real wages.

In Germany, at the height of the inflation in 1923, not only were weekly wage adjustments adopted, but a further refinement was introduced into the sliding-scale system in the attempt to check the decline in real wages. Each week a calculation was made of the amount by which the previous week's money wages fell short of the sum required to compensate for the higher cost of living in that week, as measured by a subsequently published index number. This amount was then added to the current week's wages as a kind of deficiency payment.¹ In practice, even this supplementary wage failed to prevent a fall in real wage rates, since by the time the wage-earners received it, its purchasing power was considerably less than in the period when the deficiency originated.

¹ Sittler, *op. cit.*, p. 635.

In less extreme cases than this, however, this modification of the usual sliding scale will confine within narrow limits the variations in real wage rates. The course of real wage rates when these deficiency payments are made again depends on the rate at which the price-level is rising.

(a) When the index is rising at a diminishing rate so that its curve is concave to the x -axis (along which time is measured), a sliding scale with deficiency payments will, of course, allow real wage rates to fall on the first pay-day following the rise of prices ; but thereafter real wages will be raised and maintained above their original level.

(b) When the index is rising at a diminishing rate so that its curve is a straight line, this type of scale will allow real wage rates to fall on the first pay-day after prices start rising, and thereafter will just restore real wages to their old level and maintain them at that level.

(c) When the index is rising at a constant rate, this modified sliding scale will stabilise real wage rates at a level above that to which they fall on the first pay-day following the rise in prices, but below the original level.

(d) When the index is rising at an increasing rate, the modified sliding scale will raise real wage rates above the level to which they fall immediately after prices start rising, though not up to the original level, but thereafter real wages will steadily decline.

(2) *Deviations from the average pattern of expenditure.*

—In the second place, most cost-of-living scales fail to achieve their primary purpose of neutralising the effects of monetary changes, because they adjust the wages of workers with differing incomes and family responsibilities by reference to a single index number. The Ministry of Labour's cost-of-living index number,

TABLE XIII

Income Group	Average Percentage of Income paid in Rent (including Rates)
s. d. s. d.	
22 7 to 32 6	32.5
32 7 „ 42 6	23.7
42 7 „ 52 6	19.5
52 7 „ 62 6	17.2
62 7 „ 72 6	15.3
72 7 „ 82 6	14.9
82 7 „ 92 6	11.7
92 7 „ 102 6	10.3
102 7 „ 112 6	9.9
112 7 „ 122 6	9.5
122 7 „ 132 6	9.2

Moreover, within each of these income groups rent payments were spread over a very wide range; for instance, the distribution of rents within the income group 42s. 7d. to 52s. 6d. worked out as follows for the 413 families in the sample.

TABLE XIV

Rent	Number of Families
Under 5s	4
s. d. s. d.	
5 0 to 5 11	21
6 0 „ 6 11	59
7 0 „ 7 11	57
8 0 „ 8 11	82
9 0 „ 9 11	59
10 0 „ 10 11	52
11 0 „ 11 11	15
12 0 „ 12 11	31
13 0 „ 13 11	8
14 0 „ 14 11	3
15 0 „ 15 11	9
16 0 „ 16 11	4
17 0 „ 17 11	—
18 0 „ 18 11	2
19 0 „ 19 11	1
Over 20s.	3

Experience suggests that in a period of rising prices costs of living are likely to increase more rapidly for the earners of low wages than for those earning high wages, since food prices, on which the former spend the bulk of their incomes, appear to be more flexible than most of the other prices affecting working-class expenditure. When prices are falling the situation is reversed. Hence if a changing price-level is to cause no disturbance of relative real wage rates, the money wages of the better-paid workers are likely to need altering by a smaller percentage than those of the lower-paid. For this reason a sliding scale with flat-rate changes in wages equal in amount for all grades of worker may possibly, though not necessarily, prove to be more equitable than one which gives all workers the same percentage wage change. This, incidentally, was not the reason for the widespread resort to flat-rate wage adjustments during and immediately after the war; the idea then was that some sacrifice of real income had to be made by the working class as a whole, and the higher-paid grades were better able to bear a reduction in their standard of living than the lower-paid.

There seems to be no gainsaying the conclusion that, in view of the varying patterns of expenditure both as between and within the various income groups, it is impossible by means of cost-of-living sliding scales to maintain absolutely constant the real wages of all workers; it is impossible to calculate for each individual the change in money wages required to compensate him for changes in his cost of living. But a closer approximation to constancy of real wages could be achieved if there were available a series of index numbers, each measuring changes in the costs

of living of a fairly narrow range of income-recipients. In a few countries attempts have been made to meet this need by publishing more than one cost-of-living index number.¹ These include Switzerland, which calculates separate indices for officials, skilled and unskilled workers; Belgium, with four indices relating to different income groups within the wage-earning classes and one index relating to the lower middle class; Bombay, which has separate indices for native and European workers; and Egypt, where in addition to a general cost-of-living index there are separate indices relating to manual workers and junior clerks.

Certain objections might, however, be urged against the use of different indices to regulate the wages of different grades.

(i) Firstly, it might easily happen that one grade would receive a rise in wages while another suffered a reduction, and it would almost invariably happen that some grades would suffer larger percentage cuts than others. These discrepant wage changes, though necessary if relative real wage rates are to be kept unaltered, might be a source of considerable friction and discontent, particularly if, as would probably be the case in a period of falling prices, the lower ranges of income were subject to bigger percentage cuts than the higher. The only remedy for this difficulty, if it arose, would be the education of the ordinary man to an appreciation of the elementary but commonly disregarded distinction between money wages and real wages; and this, owing to our all being victims to a greater or less degree of the "money illusion", is likely to prove somewhat difficult.

¹ Cf. the I.L.O. report on *Methods of Compiling Cost of Living Index Numbers*, Appendix II.

(ii) Secondly, it is not easy to compile an index of changes in the cost of living of the more highly paid grades of worker. The expenditure of middle-class families is very varied in direction, and their incomes are by no means mainly spent on standardised commodities whose prices are easily ascertainable and comparable at different times. However, even a defective index of the living costs of salary-earners covering, in addition to ordinary house-keeping expenditure, such items as the cost of motoring, travel, education, medical services, etc., would be more appropriate for the regulation of the salaries of civil servants, local government officials, teachers and other salaried workers, than an index based wholly on working-class budgets.

(iii) The rather curious objection has also been raised to the construction of separate indices for the different social classes that, "in contradiction to modern ideas of the equality of men and economic freedom, it would tend to crystallise the social classification of the individual. A man belonging to a given class would then be licensed to stay there indefinitely, or forbidden to rise in the economic scale."¹ Such a criticism can only arise from a complete misconception of the purpose of cost-of-living scales. They are intended to obviate fortuitous changes in real wage rates, not to stabilise real wage rates for all time. And the compilation of a series of index numbers for the purpose of wage adjustments would certainly not debar a workman from changing his grade and becoming subject to a different scale.

(3) *Changes in modes of living.*—Thirdly, even if a

¹ F. Klezl, "Methods of calculating Index Numbers", in the *International Labour Review*, August, 1924, pp. 257, 258.

cost-of-living scale adjusts a worker's money wages so that he is always just able to buy a given collection of commodities, it can be argued that his real wages may not remain constant if his mode of living alters while the scale is in operation. This argument is valid only if by real wages is meant the subjective valuation of the commodities acquired in exchange for labour. Two cases require consideration.

(i) The mode of living may alter through a change in the relative prices of different commodities. Suppose, for instance, that the variations in the prices of the commodities comprised in an index number compensate one another, so that the index remains unchanged. The recipient of a given income, allocated between the various items in the same proportions as the weights of the index, can, if he chooses, continue to buy the same quantities of the same commodities as he did before relative prices altered; but, on the assumption that he was formerly securing equi-marginal returns from his expenditure, he will now fail to spend his income to the best advantage if he makes no change in his budget. By curtailing his expenditure on the things that have become dearer and extending it on those that have become cheaper, he can secure a greater aggregate real return from his given income than he did formerly. This reasoning leads to the conclusion that whenever there are disparate price movements, a cost-of-living sliding scale which takes no account of the possibilities of substitution will fail to prevent some change in real wages (in the sense of the real satisfaction arising from the expenditure of wages).

In at least one country, viz. Austria, an unsuccessful attempt has been made to allow for this factor in

calculating the index number. "From the beginning of 1921 onwards a sort of official index number was calculated by the authorities. This was a food index, which was scientific in so far as the selection of commodities was based on the fact that an adult man needs 3000 calories a day for his support. Each time the index was calculated, i.e. once a month, the list of items was revised in accordance with market conditions, care being taken that it should represent an adequate and suitable amount of nourishment. The list was therefore not fixed but variable."¹ This index number somewhat naturally failed to secure the confidence of the two parties in industry, more particularly the workers, who suspected the apparently arbitrary revisions of the list of items each month. In any case, this method of allowing for the effects of substitution is necessarily restricted to foodstuffs for which a physical unit of measurement is available.

(ii) The mode of living may change through changes in the tastes of consumers, changes in their real incomes and in the size and age-composition of families, through the introduction of new commodities and so forth. The usual cost-of-living index number, with a fixed list of commodities and fixed weights, necessarily fails to take account of changes of this kind, so that, the longer an index number is continued without modification, the more likely is it that the particular collection of commodities whose cost it is measuring has ceased to be representative of working-class expenditure. By far the commonest criticism of the British cost-of-living index is that it is based mainly on an investigation into working-class budgets made

¹ C. Forchheimer, "Sliding Wage Scales in Austria", in *International Labour Review*, July, 1924, p. 35.

scale economic change, over which to operate an index of the cost of living without any appreciable modification. The list of commodities and weights needs revising at fairly short intervals, say every ten years. It is, of course, possible that a revised index based on present-day family budgets might give results not differing appreciably from those obtained with the existing index. But the periodical revision of the index would have the great advantage, so far as wage negotiation is concerned, of securing more fully than is possible at present the confidence of the parties in industry. An index number which is to be used in the process of settling wages must not only be reliable, but must also be believed to be reliable by the parties concerned; and it cannot be claimed that the present index fulfils this latter condition. A revision of the index has been contemplated by the Ministry of Labour for many years and is now being undertaken.

(4) *Changes in the price-level caused by shifts of demand.*—There is a further difficulty, more theoretical in character, arising from changes in the mode of living. The general level of prices measured by an index number may rise or fall not only through what are commonly called "monetary influences", but also through shifts in relative demands. It used to be assumed that changes in the relative demands for commodities would lead to compensatory movements of relative prices, leaving the general level unaffected. But this assumption would appear to be unwarranted. If, for instance, consumers' demand is transferred from a commodity produced under conditions of diminishing costs to one produced under conditions of increasing costs, an index of prices will tend to

rise, since the prices of both commodities will rise; and this rise in the price-level, as measured by the index, can occur without any change in the effective supply of money. In a case of this kind, a sliding scale would cause money wage rates to rise, despite the fact that the rise in prices was induced by the re-allocation of a given aggregate expenditure by consumers. Real wage rates, therefore, if interpreted as a subjective valuation, would also rise.

This is a difficulty inherent in cost-of-living sliding scales which no kind of adjustment can eliminate. We cannot arrange that money wages shall be altered only when the index moves in consequence of "monetary influences", and that movements due to "real causes" shall be ignored. Even if, analytically, we could distinguish between these two groups of influences, it would be almost impossible to separate their effects in practice. But the recent controversy over the nature of a "neutral money" has brought home to the economist the difficulties of defining a "monetary influence". If, as some writers have argued, any monetary system, however it is managed, will cause relative values to differ from those that would prevail in a non-monetary system, it would appear to be a hopeless task to attempt to isolate the effects of "real" causes; the way in which a "real" influence affects prices will vary with the type of monetary system.

(5) *Local variations of the price-level.*—Finally, sliding scales may fail to prevent fortuitous changes in real wage rates because a single index is used over a wide area, so that no account is taken of local variations in the extent of price changes. In many countries, e.g. Australia, Austria, Belgium, France, Germany,

Italy, South Africa and the United States, local indices of the cost of living are compiled, either by the central government, local authorities or special local commissions. Where economic conditions vary considerably in different parts of a country, and where wages are negotiated on a local basis, there is a strong case for the compilation of local indices in addition to a national index, since local price variations will probably be far from uniform. But in countries where distances are small and where wage rates have been standardised by national agreements, price movements will tend to be more nearly uniform throughout the country. Even, however, in a compact country like Great Britain, it would be an advantage, so far as the conduct of wage negotiations is concerned, if certain local indices were made available. From the information already collected by the Ministry of Labour for its single index number, a series of, say, four additional indices could easily be compiled, these relating to the cost of living in London, the larger provincial towns, smaller urban areas and rural areas. The classification of areas into these four groups might be made on the same lines as that adopted in the original Burnham scale for the regulation of teachers' salaries.

CRITICISMS OF THE COST-OF-LIVING SLIDING SCALE

(1) *The stabilisation of real wage rates.*—The weightiest criticism of the principle of the cost-of-living sliding scale is directed against its effect in stabilising real wage rates. It is unlikely, in a dynamic system, that the equilibrium level of real wage rates will remain constant for very long; yet the effect of cost-of-living sliding scales is to reduce to the smallest

possible dimensions the variations in real wage rates (apart, that is, from modifications in the basic rates to which the scale applies). It is possible, for instance, that the price-level may rise through a decline in the physical productivity per head of population. This might arise as a consequence of the exhaustion of natural resources, the exigencies of a war or "economic sanctions", or an adverse movement of the equation of international exchange. The raising of money wages in order to prevent a shrinkage of real wages could only have the effect, in such a situation, of throwing workers out of employment.

Or, to consider the reverse case, a falling price-level may be the consequence of an increase in the physical productivity per head of population, the effective supply of money remaining constant or increasing less rapidly than aggregate physical productivity. To lower money wages in these circumstances might bring wages below the marginal productivity of the labour supply and create an increasing number of unfilled vacancies. Or, thirdly, the price-level may remain stable because expanding productivity is balanced by a corresponding enlargement of the monetary circulation, or because a declining productivity is offset by a withdrawal of money from circulation. In both these cases the stabilisation of real wages rates by keeping money wages unchanged is the wrong policy, resulting in the former case in the appearance of unfilled vacancies and in the latter in unemployment. In fact, it would appear that the only situation in which the general level of real wage rates could be safely stabilised, even for a short period, is the stationary state, a condition not likely to be encountered outside the text-books.

It can, of course, be urged in reply to this criticism,

that the use of a cost-of-living sliding scale to prevent *unintentional* changes in real wage rates does not in the least preclude the possibility of deliberately modifying the basic rates payable under the scale, if increasing or decreasing marginal productivity warrants such adjustments. In fact, it can reasonably be claimed that this type of sliding scale has the great merit of leaving the parties free to negotiate adjustments in *real* wages by eliminating the need for negotiating wage-changes to meet variations in the purchasing power of money. This, in the opinion of organised labour, is the strongest argument for this method of wage adjustment. "The Cost of Living Sliding Scale is merely a piece of machinery for maintaining the purchasing power of money wages, leaving the workers' organisations free to concentrate on the improvement of real wages. In the past Labour has had to expend its energies and funds on two quite different objects, which, however, became mixed up with each other, the distinction finally being lost in the general objective of 'higher wages'. 'Higher wages' really mean two quite distinct propositions; first, higher money wages in order to maintain real wages, and, second, higher real wages in order to improve the standard of living. The failure to distinguish between real wages and money wages has over and over again led the workers in the wrong direction, and the fact that a Cost of Living Sliding Scale does once and for all sweep out of the way the source of this confusion is the strongest argument in its favour. There is an end to all the fighting to keep money wages rising as prices rise, and all the efforts of Labour can be concentrated on raising real wages and so improving the standard of life of the workers."¹

¹ *Industrial Negotiations and Agreements*, p. 41.

But we can be quite certain that these adjustments of basic rates will not in practice be made anything like so promptly as the situation requires. If, for instance, the price-level is rising through a decline in physical productivity, any attempt to cut the basic rates when the sliding scale warrants higher money wages would naturally meet with the most strenuous opposition. On the other hand, if the price-level is rising for monetary reasons in a period of expanding productivity, organised labour would find it difficult to induce employers to raise wage rates more rapidly than was required by the sliding scale. Any arrangement for the automatic adjustment of wages by reference to some index will tend to encourage one party or the other, according to the circumstances of the case, to oppose any apparent departures from this automatic principle.

(2) *The "vicious circle" argument.*—One of the most popular arguments against this type of sliding scale is that it encourages prices and wages to move in a "vicious circle". During inflationary periods, it is argued, the raising of wages to meet a rise in the cost of living will compel producers to raise prices still further, which, under a sliding scale system, will warrant a further increment of wages, and so on *ad infinitum*. As is only to be expected, employers are most impressed with this "vicious circle" argument when prices are rising, and wage earners when they are falling. In examining this argument two cases must be distinguished: (i) where the movement of the price-level is due to "monetary influences" (i.e. changes in the effective supply of money which cause aggregate costs of production to diverge from aggregate prices), and (ii) where the price-level is changing owing to "real

factors" (such as technical improvements, variations in crop yields, the exhaustion of natural supplies and so on).

(i) Suppose that a government finances some abnormal expenditure by printing additional notes with which to pay its contractors. The latter will now be in a position to increase their effective demands for raw materials, machinery, etc., without there being any offsetting decline in the demands for goods on the part of the general body of taxpayers. Hence there must be a tendency for the price-level to rise, starting with the prices of the commodities required by government contractors and subsequently spreading throughout the system. Increased effective demands for goods must in turn induce an expansion of the derived demands for labour, starting with the government contractors and again spreading through the whole system. Unless, therefore, there exist reserves of unemployed labour, the general level of wages must inevitably move upwards, the employees of government contractors being naturally the first to benefit.

It can, therefore, be legitimately claimed that, in a situation of this kind, cost-of-living sliding scales merely achieve automatically the wage adjustments which must in any case be made to meet a change in the conditions of demand for labour. Wages are raised to meet a prior increase in the capacity of industry to pay, so that there is no necessity for employers to raise prices still further, as the "vicious circle" argument assumes. If, in a state of full employment, money wages were not raised to meet an inflationary rise in the price-level, an increased number of unfilled vacancies would appear.

There is, however, this element of truth in the view

that sliding scales cause wages and prices to chase each other interminably when inflation occurs. A government which proposes to finance some abnormal expenditure over a period of time by means of inflation is bound to proceed in such a way as to cause prices to keep on rising ahead of wages. It must keep down real wages if it is to succeed in diverting productive resources into the channels in which it is making the abnormal demand. If wage rates remain rigid despite the rising price-level, a moderate degree of inflation may suffice to achieve the government's purpose ; but if wages are rapidly adjusted to price changes by means of sliding scales, inflation will have to take place on a much larger scale. The more hotly the donkey runs in pursuit of the carrot the more rapidly must the carrot be made to move. If government policy requires a lower level of real wages any attempt to maintain real wages through sliding scales must be countered by a further raising of the price-level.

(ii) Where the movement of the price-level is due to "real" causes, sliding scales may cause wages and prices to move in a "vicious circle". Suppose that, owing to the exhaustion of natural resources, an adverse movement of the international equation of exchange, or some national calamity such as a war or an earthquake, money costs of production rise. If the consequent rise in prices is followed by a corresponding rise in money wages, costs will be further augmented, and prices must be raised again to restore a normal margin of profit. In other words, if the price-level rises in consequence of some factor which necessitates a lower standard of living for the community as a whole, any attempt to maintain real wages by means of sliding scales is likely to be countered by a further raising

of the price-level. Moreover, since wages account, directly or indirectly, for the greater part of marginal prime costs, each increase in money wages will necessitate an approximately proportionate rise in the price-level.

The unintelligent use of cost-of-living sliding scales (i.e. without any modification of the basic rates when circumstances indicate some change in real wages) can thus have the most disastrous consequences. If there is no limit to the amount of credit which can be issued to finance the mounting wage bill, wages and prices may continue to soar until the monetary system breaks down. Where, however, as is usually the case, the expansion of credit is strictly limited by the available reserves of legal tender money, the "vicious circle" will at some stage be broken by the rise in interest rates, resulting in a decline in investment and a fall in the price-level. Conversely, the "vicious circle" of falling prices and falling wages will be broken by the reduction in interest rates induced by the declining demand for money.

(3) *The neglect of the wage-capacity of the individual industry.*—The principle of the cost-of-living sliding scale has been attacked also on the ground that it takes no account of the capacity of individual industries to pay wages. A rising cost of living may indicate that industry as a whole can bear higher money wages (though, as we have seen, it does not necessarily give any such indication, since the price-level may rise through some factor requiring constant or even falling money wages). But it certainly does not indicate that every single trade is now in a position to pay increased money wages. The prosperity of individual industries obviously fluctuates quite apart from any variations in

the general price-level as measured by an index number.

But this criticism would appear to rest on a misconception of the purpose of cost-of-living sliding scales. They never were intended to adjust wages to what each individual trade could afford to pay; they have been adopted merely to eliminate fortuitous variations in real wages in the course of a wage agreement, it being open to either party to press for an adjustment of the basic rates to which the scale applies. If, of course, either party enters one of these sliding scale agreements with the idea that no wage adjustments of any kind are to be made, except those warranted by fluctuations in the index number, trouble must sooner or later arise, and the sliding scale will be discredited. But a cost-of-living sliding scale, when adopted as part of a collective agreement, should be regarded as merely supplementing other arrangements for varying the standard rates of pay, and not as superseding them.

(4) *The frustration of the aims of indirect taxation.*—A minor criticism of these sliding scales is that they tend to frustrate the aims behind the imposition of new indirect taxes or the removal of existing indirect taxes; wage earners covered by such scales will feel no extra burden when new commodity taxes are levied, nor will they feel any relief when such taxes are removed. Moreover, since a rise in prices due to commodity taxation in no way increases the money wages which industry as a whole can afford to pay, any wage adjustments under sliding scales must, under such circumstances, tend to throw workers out of employment. This admitted defect of sliding scales could be minimised, if the parties concerned agreed to ignore any variations in the index which were clearly traceable to fiscal changes.

From the trade union side, cost-of-living sliding scales have sometimes been criticised on the ground that, by providing for automatic wage adjustments, they weaken the inducement to join a trade union.¹ It seems very doubtful whether there is much force in this contention. The existence of a sliding scale does not in the least reduce the need for an organisation to negotiate changes in the basic rates to which the scale applies; a sliding scale is no substitute for a trade union.

Summary of conclusions.—To sum up our conclusions: Provided their limitations are continually borne in mind, cost-of-living sliding scales have a distinct, though restricted, sphere of applicability. Where the only factor affecting the movement of the price-level is a changing effective supply of money, these scales can be used with advantage, provided always that there are no restrictions on the adjustment of basic rates to meet the changing situation in individual trades. But this monetary condition is likely to be fulfilled only when violent inflation or deflation is the dominant influence on the price-level. In reasonably normal times, when prices in general are moving wholly or partly in consequence of non-monetary factors, such as bad harvests, technical progress, tariffs, trade disputes, and so forth, cost-of-living sliding scales are likely to have harmful effects, by promoting stability of real wage rates when higher or lower real rates are required by the economic situation. In short, the cost-of-living sliding scale must stand condemned except as a means of emergency adjustment in periods of violent monetary disturbance.

¹ Cf. *T.U.C. Annual Report for 1928*, p. 487.

CHAPTER IX

THE REGULATION OF WAGES BY AN INDEX OF NATIONAL PRODUCTION

REALISATION of the limitations and defects of cost-of-living sliding scales has led to the emergence of proposals, from a number of sources, that wages should be regulated by reference to an index of national production. It is usually proposed that money wage rates should first be corrected for changes in the cost of living, and that the resultant real wage rates should then be modified periodically according to a production index. Thus, if the cost-of-living index showed an increase, but the production index had declined, money wages would increase less than in proportion to the cost-of-living index, or might even fall if the decline in production outweighed the rise in prices. This would avoid the danger of stabilising real wage rates when expanding or declining physical productivity indicated some variation of real wages.

In Great Britain this proposal has been associated particularly with Sir Josiah Stamp. In 1923 he suggested that "an Index of Production should be prepared which should serve as an overhead corrective to the application of the cost-of-living index".¹ He argued that "any adjustment of wages by prices, without reference to the total national production (per head), is an attempt to share out what may never have

¹ *Current Problems in Finance and Government*, p. 150.

been produced, and must lead straight to disaster and unemployment";¹ on the other hand, it might prevent wage-earners from securing their full share of an increased national production.

In a progressive economic system, where the general trend is towards an increasing production per head, one might have expected the trade union movement to support this proposal enthusiastically, since its adoption would cause real wages to rise more promptly than is likely to be the case when each wage increase is the result of *ad hoc* negotiation. But organised labour in this country has shown little interest in the proposal. Sir Arthur Pugh alone, of the trade union leaders, has advocated the use of an index of production to regulate minimum wages. In his Presidential Address to the Trades Union Congress in 1926 he said: "In my view a scientific wage policy for the unions requires to be thought out in relation to some generally acceptable set of principles for determining the division of the product of industry among those who have a rightful claim upon it. . . . Has not the time arrived for us to consider how we can apply the principle of a living wage, or basic wage, correlated to the index of national production and aiming at the equitable distribution of spending power in relation to family needs and the cost of living?"² It is significant that this proposal should come from the leader of the one industry which still adheres to the selling-price sliding scale.

In America the relation between wage adjustments and national productivity has been much more widely discussed since the war. This was due, partly, to the fact that statistical investigations showed that real wages in America had increased little since 1890, and

¹ *Ibid.*, p. 149.

² *T.U.C. Annual Report for 1926*, p. 76.

were accounting for a reduced proportion of the total national income;¹ but in the main it appears to have been the natural outcome of the "gospel of high wages" and of the belief that economic stability could be attained only if wages increased in proportion to national production. In 1922 a bill was introduced in Congress which, *inter alia*, proposed that the average per capita productivity of American manufacturing industries, over a period covering the preceding ten years, should be the main principle regulating the real wages of employees in Federal Navy yards and arsenals. A resolution expressing approval of this principle was adopted by the Metal Trades Department of the American Federation of Labor.² Various trade unions have also separately defended this method of adjusting wages.³

The so-called "modern wages policy", adopted by the American Federation of Labor in 1925, aims essentially at the regulation of the general wage-level in the light of ascertained changes in national production. Mr. William Green, President of the A.F.L., explained this new policy as follows: "Higher money wages from an economic point of view do not improve the situation of the worker if prices increase more than money wages. Higher real wages from a social point of view do not improve the situation of the worker if productivity increases more than real wages. For, higher productivity without corresponding increase of real wages means that the additional product has to

¹ H. Feis, *Principles of Wage Settlement*, p. 378.

² *Ibid.*, pp. 388, 389.

³ *Ibid.*, p. 379. The essential sections of a long brief advocating the regulation of wages by an index of production, prepared by the Labor Bureau (Inc.) for the International Association of Machinists, are reproduced in Feis, *op. cit.*, pp. 403-23.

be bought by others than the wage-earner. This means that the social position of the wage-earner in relation to other consumers becomes worse, because his standard of living will not advance proportionately with those of other groups. Deteriorating social position—that is, declining purchasing power of the mass of wage-earners in relation to the national product—brings about industrial instability which will develop into industrial crisis. The American Federation of Labor is the first organisation of Labor in the world to realise the importance of the factor productivity in economic society. It no longer strives merely for higher real wages; it strives for *higher social wages*, for wages which increase as measured by prices and *productivity*.”¹

The use of an index of national production as a partial determinant of basic wages was also advocated in 1925 by the Queensland Economic Commission, which was appointed by the Queensland Court of Industrial Arbitration to inquire into the factors determining basic wages. The Commission recommended that the Court, in declaring a standard basic wage for industries of “average prosperity”, should be guided primarily by the capacity of industry to pay. This should be estimated from indices showing changes in income per head, past production per head, and estimated future production per head. The indices of the value of material production per head and of income per head in the preceding year should be averaged. This average should then be added to the index of the prospective value of material production per head in the current year, and the total again averaged, in order to give equal weight to past and future production.

¹ A.F.L., *Organised Labor's Modern Wage Policy* (1927), cited in Lauck, *The New Industrial Revolution and Wages*, p. 178.

The index of wage-capacity thus compiled should be the main guide to be followed by the Arbitration Court, but in addition some consideration should be given to such factors as unemployment, productive efficiency and rates of wages in neighbouring States.

Alternative methods of applying the index.—If real wages were adjusted by reference to the variations in an index of production, a choice would have to be made between two principal methods. Either wages could be adjusted at fairly short intervals, say quarterly, according to the level of production in the preceding quarter, or, alternatively, the adjustments could be made at longer intervals according to the general trend of the production index, as indicated by, say, a ten-years moving average.

The former method would cause wages to follow all the short-period fluctuations in national productivity. The principal cause of these is the trade cycle. But we have seen that wage adjustments have little or nothing to contribute to the eradication of cyclical fluctuations. The more money wages fluctuate in the course of the trade cycle, the greater will be the instability of the price-level, and the more will the real burden of fixed indebtedness fluctuate. The short-period adjustment of the general wage-level to variations in an index of production would thus be of very doubtful value. Moreover, at present there are no quarterly statistics of output available for a large number of industries, so that a quarterly index might give a distorted view of the real variation of production. In any case, for some industries, especially agriculture, quarterly statistics of output would be meaningless.

The periodical adjustment of wages according to the general trend of the index of production has much

more to commend it. If productivity per head of population declines, owing, say, to a widespread destruction of national capital, or to a shift in the terms of international trade or some similar factor, the avoidance of abnormal unemployment requires that the level of real wage rates shall fall. The adjustment of money wages by reference to indices of the cost of living and of national production would automatically ensure a reduction of real wages in such circumstances. On the other hand, if real wages fail to keep pace with expanding productivity, unfilled vacancies will appear in increasing numbers, and labour will be paid less than its economic worth. The adjustment of wages in the light of an index of production would obviate this.

OBJECTIONS TO THE PROPOSAL

The objections which may be urged against such a method of regulating wages are, as in the case of cost-of-living sliding scales, of two kinds. Firstly, it may be argued that it is difficult, if not impossible, to compile an index number suitable for the purpose. Secondly, there are certain theoretical objections to the principle of this method of adjustment.

(1) *Statistical difficulties.*—There are, at present, two indices of physical production available in this country, published by the Board of Trade (since 1928) and by the London and Cambridge Economic Service (since 1924). The former, which is published quarterly, is compiled from statistics of output relating to the following industries: mines and quarries, iron and steel and manufactures thereof, non-ferrous metals, engineering and shipbuilding, building materials and building (included since 1934), textiles, chemical and

allied trades, paper and printing, leather, boots and shoes, food, drink and tobacco, gas and electricity, production of pianos and the consumption of rubber. The London and Cambridge Economic Service publishes its production index in two forms—quarterly and annual. The former is less comprehensive than the quarterly index of the Board of Trade, since it omits leather, boots and shoes, gas and electricity, building materials and building. But the annual index includes the leather trades, india-rubber trades, building and agriculture. It will be noticed that all these indices exclude the output of the "service" industries, such as transport, the distributive trades, hotels and boarding-houses, entertainment, sport, domestic service, banking and insurance, the professions, health and educational services, etc.

It must be conceded that these indices of national production, or for that matter, any other index that might be compiled, can, at the best, give only a very general indication as to the direction and extent of the variation in output of most industries. There being obviously no unit of output as a whole, all we can do is to strike an average of the percentage changes in a heterogeneous collection of physical outputs, weighted according to their estimated importance in the national economy. The weights allotted to each industrial group are usually based on its net product (in value) as revealed in the periodical censuses of production.

But the reliability of any such index is seriously limited, owing to certain difficulties which are inherent in its construction.¹ These are quite apart from the

¹ Cf. J. W. F. Rowe, "An Index of the Physical Volume of Production", in *Economic Journal*, 1927, p. 174; and A. W. Flux, "Indices of

difficulties arising from the inadequacy of the statistical material at present available.

(i) In the first place, a satisfactory unit of output is available only in those industries turning out a fairly standardised product. A large number of industries are unable to fulfil this essential condition, e.g. most branches of engineering, pottery, furniture manufacture, clothing manufacture, public works contracting and many others. Most of the industries producing intangible services also fall into this category, such as domestic service, distribution, etc.; in fact, the only "service" industry whose output can be reasonably well measured is transport, where the "ten-mile" and "passenger-mile" provide convenient units.

Unfortunately, we are not entitled to assume that these non-measurable outputs are likely to vary in the same direction and to about the same extent as the average of the measurable outputs. For one of the characteristic features of a progressive community is a steady increase in the proportion of total resources devoted to the production of non-measurable luxury goods and services. Hence there will be a tendency for an index of production based, as it must be, on measurable outputs only, to understate the real rate at which the aggregate production of goods and services is expanding. This is a serious defect when the index is being used to ensure that wages do not fall below the level of marginal productivity.

Thus, Professor Pigou and Mr. Colin Clark have pointed out that whereas their index of aggregate real *income declined by only 5 per cent between 1920 and*

1932, the Board of Trade's index of production fell by 16.5 per cent—over three times as much.¹ They suggest that the discrepancy is due, in part, to the fact that "during the great slump, while 'production' was falling rapidly, the number of persons at work in retail distribution, professions, hotel services and the like was not merely not declining, but actually increasing". Another factor, in their opinion probably more important, was the favourable movement of the terms of international trade, which enabled us to import a greater quantity of foodstuffs in exchange for a given quantity of manufactured exports.

(ii) Again, any inadequate representation of such capital-producing industries as engineering, building, public works contracting, etc., through difficulties of measurement, must reduce the reliability of a production index so far as concerns its use in wage adjustments. We can reasonably expect the production of capital goods, as distinct from consumption goods, to account for an increasing proportion of total economic activity in a progressive community. For this reason also, therefore, an index of production would tend to understate the general upward trend of aggregate production in a progressive society.

Mr. Rowe, who was responsible for the preparation of the index of production published by the London and Cambridge Economic Service, admits that the engineering group is inadequately represented.² The only items relating to this group included in the annual index are the tonnage of pig-iron and steel (a very inadequate guide, since steel ingots may be

¹ London and Cambridge Economic Service, Special Memorandum No. 60 on *The Economic Position of Great Britain*, p. 22.

² *Op. cit.*, p. 181.

used to make some comparatively simple commodity like steel rails or a piece of highly complicated machinery), tinplates and galvanised sheets, exports of railway locomotives, wheels and axles, and the tonnage of ships launched. The whole range of structural, electrical, motor and aircraft engineering and the manufacture of machinery is not directly represented in the index number.

(iii) A further difficulty arises through the occurrence of qualitative changes in output. A few commodity units can be relied on never to change in quality, *e.g.* a kilowatt of electricity. But a yard of cloth, a gallon of beer or a pair of boots may obviously denote different things at different times. Since the broad tendency in a progressive community is towards the production of the finer qualities, a production index compiled on the assumption that its units of output are of unvarying quality is likely, as time goes on, to understate the increase in "real" output.

This need not be a serious defect, so far as the use of the index of production in wage adjustments is concerned, provided that the commodities whose qualities are steadily improving are adequately represented in the cost-of-living index (it being assumed that money wage rates are first corrected for changes in the cost of living before applying the index of production). Suppose, to take a highly simplified case, that the whole benefit of technical progress in a given period were taken out in the form of improvements in quality, the quantity of each commodity produced remaining constant and the quantity of labour employed per unit of each commodity remaining unchanged, but, of course, being more effectively applied. Under these conditions the index of production, the

cost-of-living index and money wages would all remain constant ; nevertheless the same money wages would permit of a higher standard of living since they would be spent on goods of an improved quality. If, however, the improvements in quality affected only or mainly commodities not entering into the cost-of-living index number, the defectiveness of the production index in this respect would be a more serious matter, since real wages would tend to lag behind productivity.

(iv) The index is likely to register too small a rate of increase in output for two further reasons : (a) the non-inclusion of new industries, which will almost certainly be developing at a greater rate than the older ones on which the index is based, and (b) the fact that as time goes on the original weighting system will cease to correspond to the current relative importance of the various industries, the older industries developing at a less than average rate being given disproportionately heavy weights. Both these difficulties can be reduced to comparatively small dimensions by periodically revising the base of the index so as to take account of new industries and of changes in the relative significance of different industries. These revisions can be made at comparatively short intervals, thanks to the quinquennial censuses of production taken by the Board of Trade. The weights of the Board of Trade index have already been revised in the light of the results of the census of 1930.¹

(v) Finally, the production index may prove defective as a measure of the wage-capacity of industry in general because it takes no account of changes in the equation of international exchange. Home production might show no change according to the index, but a

¹ See the *Board of Trade Journal*, March 28th, 1935, p. 515.

favourable movement of the terms of foreign trade might nevertheless increase the quantity of goods available for consumption at home. Reference has already been made to the influence of this factor in keeping up the level of income per head in Great Britain during the last depression. To make the production index satisfactory for purposes of wage regulation it would have to be converted into an index of the quantity of commodities available for consumption or investment; to effect this, the quantities of all exports included in the production index would have to be corrected in the light of changes in the relative price-levels of imports and exports.

(2) *Theoretical objections.*—Even, however, if an index could be devised which was unimpeachable on statistical grounds, its use for the purpose of wage regulation would be open to objection for theoretical reasons.

(i) There is no certainty that such a method would maintain equilibrium, in the sense of permitting the whole available supply of labour to be absorbed into employment, without excess or deficiency as compared with the demand. In a dynamic society, the marginal productivity of labour may vary to a greater or less extent than the real income per head of population, according to the effects of changes in the relative supplies and elasticities of substitution of labour and capital. Suppose, for instance, that, with a constant supply of labour, aggregate real income expands owing to the growth of capital. Aggregate real wages will certainly, in equilibrium, now be higher. But whether they will account for an increased or a reduced *proportion* of the aggregate real income depends on the elasticity of substitution of capital. If this is greater than

unity, capital will receive an increased share in the aggregate income and labour's share will decline; if it is less than unity, the share going to capital will fall while relative wages will increase.¹ Hence the maintenance of equilibrium may require that real wage rates shall increase either more or less than in proportion to aggregate real income per head.

Now the regulation of wages by means of a production index would presumably give each unit of labour a constant proportionate share in aggregate output; it would therefore be a mere accident if this method of wage adjustment established an equilibrium in the labour market. An index of production, however accurate it may be as an index, gives no guidance as to whether the maintenance of equilibrium requires that rates of real wages shall rise or fall relatively to total output. Other factors, especially the volume of unemployment and of unfilled vacancies, would have to be considered in judging whether real wages should be raised more or less than was warranted by the production index.

But the use of an index of production to regulate wages cannot be condemned outright on the ground that it may allow wages to diverge from the marginal productivity of labour. We can no longer rely on the "unseen hand", if we ever could, to achieve equilibrium in the labour market, since nothing like freely competitive conditions prevail in it; hence we are confronted with the necessity of trying to do deliberately and consciously what would come about of itself in a purely competitive regime.² And no conscious process

¹ For proofs of these propositions see J. B. Hicks, *The Theory of Wages*, pp. 115-12.

² Cf. Stamp, *op. cit.*, p. 155: "I have nowhere contended that index

(ii) The main consideration which prevents the adoption of this method of wage adjustment at present is, of course, that it would involve the abandonment of the current practice of basing wages on what the individual industry can pay and not on what industry in general can pay. In industries of "average prosperity", in the phrase of the Queensland Basic Wage Commission, an index of national production might warrant the payment of approximately the same wages as indices of wage-capacity for the individual industries. But the majority of trades, at any time, are either more or less prosperous than the average; the former, with this method of wage adjustment, would pay lower wages than they could "afford", which would be objected to by the men; the latter would pay more, which would be equally objectionable to the employers. With current wage practices, the only workers to whom there is any chance of this method of wage regulation being applied are those employed in the non-trading services of central public authorities. The wage-capacity of the employer in this case cannot be judged by the ordinary financial test of profitability; it depends, in the last resort, on the taxable capacity of the community, the changes in which can be reasonably well measured by an index of national production.

If the co-ordination of the wage-levels in all industries, suggested in Chapter II, is ever realised, some measure of the wage-capacity of industry in general will be needed, and the index of production might very well be used for this purpose. But until that time arrives the use of this index to regulate the general level of wages must remain a purely academic question.

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